

# THE MYSTERIOUS PARADOX OF ADHD AND HIGH IQ - A REVIEW

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**Abstract:** ADHD (Attention Deficit Hyperactivity Disorder) is a prevalent disorder that is frequently discovered when a child begins school. In our demographic, about 2% of boys and girls have been diagnosed with the illness. Although ADHD is the most common reason for a child's visit to a mental health professional, diagnosing ADHD gets more challenging when additional conditions are present (Brown, 2000). Despite these reservations, research has shown that many of the symptoms of ADHD, such as inattention and impulsivity, are also present in smart and talented children. In some situations, gifted children's high intelligence, improper curriculum, and common behavioural features might lead to a misdiagnosis. In other circumstances, gifted and talented youngsters with ADHD hide their ADHD symptoms behind their intelligence and talents. The present paper highlights existing research on the co-occurrence of ADHD with a high IQ. Our findings imply that the co-occurrence of ADHD and high IQ is possible, even though there is a considerable risk of misdiagnosis due to certain factors mentioned in this paper, and that diagnosis of ADHD among people with high IQ is valid.

**Keywords:** Attention Deficit Hyperactivity Disorder, ADHD, Intelligence Quotient, IQ, Giftedness, Inattention, Hyperactivity, Gifted children

Consider a universe in which sights, sounds, images, and thoughts are incessantly shifting and changing. Your attention wanders from one action or thought to the next, unable to focus on the task at hand. You can get lost in your thoughts and visions to the point where you don't even notice while someone is speaking to you. This is how many people with ADHD, or attention deficit hyperactivity disorder, feel. Hyperkinesis, or minimal brain malfunction, was once a term used to describe this condition. It's a neurological disorder marked by inattention, restlessness, and impulsivity that's most typically diagnosed in childhood.

## **Attention-deficit/hyperactivity disorder (ADHD) :-**

It is a chronic, diverse neurobehavioral illness with a multifactorial inheritance that affects roughly 5–10% of children globally (Faraone et al., 2003). The diagnosis of ADHD is made on the basis of distinct patterns of inattentive and/or hyperactive/impulsive behavior (American Psychiatric Association, 1994). These signs and symptoms typically result in significant academic, social, and interpersonal problems (Busch et al., 2002). Disruptive behavior, mood, and anxiety problems learning difficulties, and executive function deficiencies are common psychiatric and cognitive comorbidities with ADHD (Biederman, 2005; Busch et al., 2002 and Sonuga-Barke, 2005).

## **Diagnostic criteria of ADHD :-**

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) of the American Psychiatric Association (APA) provides standardized diagnostic criteria and clinical guidelines for use in the full examination of ADHD. The key component of ADHD, according to the DSM-5, is a persistent pattern of inattention and/or hyperactivity-impulsivity that impairs functioning or development. ADHD is diagnosed in DSM-5 based on the patient's age, the number and intensity of symptoms, the duration of symptoms, the presence of symptoms in two or more settings (i.e., home, school, work), and evidence of symptoms interfering with or diminishing social, academic, or occupational functioning. The DSM-5 edition, released in 2013, incorporated ADHD diagnostic criteria updates, which resulted in more age-appropriate and slightly broadened diagnostic criteria that affect how the disorder is diagnosed in older adolescents and adults.

## **Noteworthy DSM-5 ADHD diagnostic criteria updates include: -**

A. ADHD was moved to the neurodevelopmental disorders chapter to better reflect how brain development correlates with ADHD. Thus, with the introduction of DSM-5, ADHD is no longer classified as a childhood disorder but as a chronic lifelong disorder.

B. Adult symptom examples have been added to the diagnostic criteria to facilitate diagnosing ADHD across the life span rather than just in childhood.

C. The age of onset was updated from “symptoms that caused impairment were present before age 7 years” to “several inattentive or hyperactive-impulsive symptoms were present prior to the age of 12 years”

DSM-5 classifies ADHD in three presentations:

- Predominantly Inattentive Presentation
- Predominantly Hyperactive-Impulsive Presentation
- Predominately Combined Presentation

In addition to the ADHD presentation, DSM-5 further classifies the ADHD severity of the present symptoms as “mild,” “moderate,” or “severe.”

ICD-10-CM ADHD codes are classified in Chapter 5: Mental, Behavioral and Neurodevelopmental disorders. This chapter provides a coding note which states, “Codes within categories F90-F98 may be used regardless of the age of a patient. These disorders generally have onset within the childhood or adolescent years, but may continue throughout life or not be diagnosed until adulthood.” ICD-10-CM codes for ADHD include:

- F90.0, Attention-deficit hyperactivity disorder, predominantly inattentive type
- F90.1, Attention-deficit hyperactivity disorder, predominantly hyperactive type
- F90.2, Attention-deficit hyperactivity disorder, combined type
- F90.8, Attention-deficit hyperactivity disorder, other type
- F90.9, Attention-deficit hyperactivity disorder, unspecified type

ICD-10 criteria for hyperkinetic disorder with disturbance of activity and attention - There are six of the following symptoms of inattention for at least six months:

#### **Attention problems:**

- Poor attention to detail/careless errors,
- Often fails to concentrate on tasks or play,
- Often appears not to listen,
- Often fails to finish things (but not for developmental or oppositional reasons),
- Poor task organization,
- Often avoids tasks that require sustained mental effort,
- Often loses things for tasks,
- Often distracted by external stimuli,
- Often forgetful.

And three of the following disturbances of motor activity for at least six months:

#### **Hyperactivity problems :-**

- Often fidgets or squirms on a seat,
- Often leaves the seat when expected to sit,
- Excessive inappropriate running or climbing,
- Often noisy/difficulty being quiet,
- Persistent overactivity not modulated by request or context.

And one of the following symptoms of impulsiveness for at least six months

#### **Impulsiveness problems:-**

- Often blurts out answers before the question is complete,
- Often fails to wait for turn in groups, games, or queues,
- Often intrudes into games or conversations,
- Often talks excessively without response to social appropriateness.

#### **Intelligence Quotient (IQ) -**

Intelligence is defined as the ability to reason, learn efficiently, comprehend complicated ideas, and adapt to a changing environment. As a result, intelligence is best viewed as a broad ability that influences performance on a variety of cognitive tasks. In 1912, William Stern, a German psychologist, devised the concept of Intelligence Quotient (IQ). The intelligence quotient (IQ) is a measurement of a person's intelligence in comparison to peers of similar age. IQ score is calculated by dividing mental age by chronological age and multiplying it by 100. IQ scores are distributed in the population in such a way that the scores of most people tend to fall in the middle range of the distribution. Only a few people have either very high or very low scores. The frequency distribution for the IQ scores tends to form a normal curve. The IQ scores of most people are represented in the middle of the bell, between 85 and 115. Overall, about 98 percent of people have a score below 130. A score of 116 or more is considered above average. A score of 130 or higher signals a high IQ

#### **Co-occurrence of ADHD and High IQ:-**

Most research on ADHD has focused on individuals with average intelligence. Considerably less is known about ADHD in populations at either end of the IQ spectrum. The majority of ADHD research has been conducted on people of average intelligence.

In populations at either end of the IQ continuum, far less is known about ADHD. Indeed, whether or not ADHD should be regarded in people with low IQ has sparked a lot of discussion (Antshel et al., 2006) and research (Fee, Matson & Benavidez, 1994; Pearson & Aman, 1994; Pearson et al., 2000). Similar concerns have been made concerning how ADHD manifests itself differently in people with high IQs. Some people have expressed worries that those with high intellectual talents are at risk of being misdiagnosed with ADHD (Baum, Olenchak, & Owens, 1998; Gallagher & Harradine, 1997; Hartnett, Nelson, & Rinn, 2004; Leroux & Levitt-Perlman, 2000; Mika, 2006; Webb & Latimer, 1993).

The proportion of students who are both ADHD and gifted are unknown due to the relatively new research on ADHD and giftedness. People are perplexed by the fact that a student can be both learning-abled and learning-disabled. "When giftedness is viewed as developmental advancement, advanced abstract reasoning ability, or asynchrony (the difference between mental and chronological age), it becomes conceivable that a bright student might have difficulty reading, writing, spelling, calculating, or organising," Silverman (2008) Much of the debate concerning the relationship between exceptional cognitive ability and ADHD centers on the possibility of bright children being misdiagnosed with the disorder. Many critics of the overdiagnosis of ADHD in children with high IQs point to Dabrowski's

(1966) positive disintegration theory. According to Dabrowski's idea, high-IQ children exhibit "overexcitabilities" in five areas: psychomotor, sensory, intellectual, imaginative, and emotional. Rapid speaking, excessive movement, fidgeting, and impulsive movements are examples of psychomotor "overexcitabilities." Teachers and caregivers may misunderstand these behaviors, which are prevalent in children with high IQs, as hyperactivity, according to Hartnett, Nelson, and Rinn (2004).

"Even if experts outline exact categories, the absence of proven techniques for detecting exceptionalities, aside from observational data across time, is troublesome for professionals as well as parents," Baum and Olenchak (2002) wrote (p.78). Kaufmann (2000) noted that identified gifted ADHD children are more impaired than other ADHD children, implying that educators and other professionals are likely not identifying gifted students with milder impulsiveness tend to lower test scores in the same students who demonstrate the high level of achievement that many schools look for when determining giftedness (Neihart, 2003). Teachers are also concerned about ADHD pupils' disruptive behaviour and fail to see signs of giftedness (Neihart, 2003).

Evidence suggests that there is a link between ADHD and giftedness. ADHD is connected to high intelligence, according to the Diagnostic and Statistical Manual of Mental Disorders (2005). "Because giftedness is not a medical illness, the manual fails to mention the impact of the "gifted condition" on the diagnosis of ADHD," Baum and Olenchak (2002). Despite this, Moon (2001) states, "Gifted youngsters with Attention Deficit/Hyperactivity Disorder (ADHD) is one of the most ignored subpopulations of gifted kids with multiple exceptionalities." Children who have both ADHD and giftedness have a tougher time dealing with emotions than children who either have ADHD or giftedness. Difficulties with immaturity, emotionality, and challenges coping with the enormous gap between their delayed social/emotional development and their accelerated cognitive development were found in gifted children with ADHD. These children also had difficulties relating to other children and resorted to inappropriate behaviour in order to communicate with them (Moon, 2001).

In all contexts and places, children with ADHD exhibit the same behaviours. They behave in the same way at home, school, and in other settings. In some contexts, the behaviours are more regulated than in others, yet they are nevertheless present in some form (Webb, 2000). ADHD children are "extremely uneven in the quality of their performance and the amount of time spent to complete tasks," according to one attribute that distinguishes them from nonADHD youngsters (Barkley, 1990 p.3). When put in an academically appropriate school, children who are gifted but do not have ADHD demonstrate consistent effort with their classwork and grades (Webb, 2000).

Webb and Latimer (1993) claim that inattention or inability to stay on task in children with high IQs may be due to boredom rather than an underlying deficiency. They believe that these children's off-task behavior stems from their attempts at self-amusement as a result of a poorly matched curriculum or boredom from waiting for their classmates to catch up. The majority of those who contend that ADHD isn't justified in people with high IQs claim that considerable symptom overlap causes health care providers, teachers, and parents to misinterpret the source of their children's behavior. These critics believe that the conduct of people with high IQs may appear to be similar to ADHD on the surface, leading to a misdiagnosis.

Gardener's multiple intelligences theory has also been proposed as an explanation for inattention and hyperactivity in children with high IQs (Baum, Olenchak, & Owen, 1998). The eight domains of intelligence, according to Gardener's idea, are verbal, logical-mathematical, spatial, kinesthetic, musical, naturalistic, interpersonal, and intrapersonal intelligence. Many adolescents with high IQs are underachieving and inattentive in school. The authors ascribe the children's poor performance and inattention to a mismatch between their talents and the bits of intelligence measured in school. For example, at school, pupils' strengths may be in the spatial and kinesthetic domains, while their bits of intelligencemeasured in school is predominantly verbal and logical-mathematical. In a classroom situation, this mismatch causes the youngster to be inattentive and unsuccessful. These youngsters, on the other hand, may do extraordinarily well when engaged in tasks in which they excel, with virtually no behavior problems or inattention.

Furthermore, adults' incapacity to deal with precocious youngsters could be a factor in ADHD-like behaviors among people with high IQs. Adults may be overwhelmed or intimidated by an extraordinarily clever youngster, according to the authors, and hence will be unable to regulate that child's conduct.

Hartnett, Nelson, and Rinn (2004) looked into the likelihood of ADHD misdiagnosis in people with high IQs. They looked into the impact of suggestion in the diagnosis of ADHD versus high IQ in youngsters. A total of 44 graduate students enrolled in a school counseling program took part in the study. Participants were randomized to one of two conditions at random. In this study, form A and form B case vignettes were used.. A seven-year-old child was described the same way in both case vignettes. The passages were written using earlier studies that looked at the relationship between ADHD symptoms and high IQ (Webb & Latimer, 1993). Participants in both formats were expected to read the description and determine the source of the child's conduct. The quantity of diagnostic advice given in each vignette, however, varied. "What do you think the underlying explanation for this child's conduct

would be if he were referred to you by his teacher for evaluation?" was asked in the form A. "Do you think the cause of this child's behavior could be attributed to AttentionDeficit/Hyperactivity Disorder (ADHD) or due to his being gifted and talented (G/T) if he were referred to you by his teacher for evaluation?" was asked in the Form B. Results revealed that participants who received form B were much more likely than those who received form A to be diagnosed with giftedness, other, or both giftedness and ADHD. The youngster was diagnosed with giftedness (14%) or both by 46 percent of participants who were handed form

B. None of the people who filled out the form A mentioned giftedness or both as a diagnosis. According to the study, there's a chance that counselor training programmes don't fully define the differences between ADHD and high IQ. Participants were ignorant of the similarities in behavior between ADHD and giftedness without the hint of giftedness, according to the authors.

The family-study design is useful for testing the validity of high IQ ADHD because ADHD is known to be a highly heritable condition (Faraone et al., 2005). If high-IQ children with ADHD are actual cases of ADHD, their relatives (both high and low IQ) should be at risk for the same condition. The relevance of genetic variables in the genesis of ADHD has been demonstrated in family, twin, and adoption studies (Hawi et al., 2005). According to family studies, the risk of ADHD is two to eight times higher among parents of children with ADHD, and a comparable risk is reported among siblings (Faraone et al., 2005). When compared to relatives of children without ADHD (4.6 percent), relatives of children with ADHD had a higher morbidity risk (25.3 percent) (Hawi et al., 2005). According to an analysis of twin studies, ADHD is 76 percent heritable (Faraone et al., 2005).

### Discussion

Individuals with ADHD exhibit traits that are typically seen in gifted children. In both ADHD and brilliant children, symptoms such as excessive activity, daydreaming, concentration impairments, and difficulty following rules are prevalent (Webb & Latimer, 1993). It is critical to do a multiprofessional clinical and psychological evaluation to distinguish between childhood psychopathology and the typical spectrum of developmental features seen in talented individuals. It's also crucial to think about the situation and setting in which each study is carried out. The present study aimed at highlighting existing research on the cooccurrence of ADHD with a high IQ. Our findings imply that the co-occurrence of ADHD and high IQ is possible, even though there is a considerable risk of misdiagnosis due to certain factors, and that diagnosis of ADHD among people with high IQ is valid.

Children with ADHD have a 9-point lower cognitive quotient than children without the diagnosis (see Frazier, Demaree, & Youngstrom, 2004 for a meta-analysis). Although ADHD patients' IQs are slightly lower, and the link between ADHD symptoms and IQ is only moderately strong, the data reviewed above demonstrates that it is possible to have both ADHD and a high IQ. The coexistence of ADHD with high IQ (IQ >120) in the same child is also a source of debate (Baum, Olenchak, & Owen, 1998). Both ADHD and high IQ/gifted children exhibit impulsivity and overactivity (Hartnett, Nelson, & Rinn, 2004; Leroux & LevittPerlman, 2000; Webb & Latimer, 1993), as well as social deficits (Silverman, 1998). This has led to questions about the validity of an ADHD diagnosis in brilliant children (Baum et al., 1998; Webb et al., 2005), prompting some to contend that ADHD symptoms in children with high IQs are irrational and may be linked to boredom generated by unexciting educational situations (Gallagher & Harradine, 1997). Although high IQ can make diagnosing ADHD more difficult, case study data suggests that gifted children with ADHD have difficulty completing homework and assigned projects, 'getting on track,' and maintaining attention in various contexts (Moon, Zentall, Grsko vic, Hall, & Stormont, 2001; Zentall et al., 2001), as well as overall academic underachievement (Moon, Zentall, Grsko vic, Hall, & Stormont, 2001). (Reis & McCoach, 2002; Zentall et al., 2001).

Adults with both high IQs and ADHD were shown to have generally lower cognitive performance than those with high IQ but no ADHD, according to a 2010 study published in Psychological Medicine. The study included a variety of linguistic, memory, and problemsolving tasks. However, there were no other control groups in this study, which is a flaw. There were no comparison groups for ADHD-only or low-IQ people, for example. On the other hand, many persons with ADHD appear to solely pay attention to something they enjoy. This is something that can be applied to school or the workplace. It's not that these people's IQs are poor; it's just that they can only concentrate on the things that matter to them the most.

Children with ADHD are now well-known to be at risk for mood, anxiety, and disruptive behaviour disorders (Angold, Costello, & Erklani, 1999; Biederman et al., 1992; Faraone, 2005). Previous research has demonstrated that gifted/high IQ children with ADHD had a mental comorbidity pattern comparable to that described in previous papers for ADHD children of normal intelligence. Effective intervention for these adolescents, from a therapeutic standpoint, must appropriately address the elements that are likely to lead to and maintain their challenges. Because a high IQ may assist ADHD children cope with symptoms, clinically relevant impairment in gifted/high IQ children may not appear until later in childhood in some situations. As a result, these youngsters may face late detection and treatment. Early treatment for ADHD reduces impairment (McGoey, Eckert, & DuPaul, 2002); this shows that gifted/high IQ children with ADHD may be at higher risk for poor outcomes as a result of being diagnosed later in childhood. According to Rommelse et al. (2015), ADHD children with high intelligence (as opposed to ADHD children with lower intelligence) do not differ significantly in terms of clinical symptoms (save maybe hyperactivity), course/outcome, or treatment response. Based on their findings, they came to the conclusion that ADHD is a real condition that affects people with high intelligence (and by extension gifted). There is empirical evidence to back up this claim (Antshel et al. 2007, 2008, 2009). Antshel et al. (2007) compared groups of children who were gifted/without ADHD, gifted/with ADHD, and not-gifted/ADHD in their first study. They discovered that gifted/ADHD children had: greater rates of familial ADHD in first-degree relatives, requirement for more academic support, higher comorbid psychopathology, lower WISC-III Block Design performance, and more functional impairments. A second research of same groups during adolescence found that the gifted/ADHD and not-gifted/ADHD groups had the same symptom persistence rates (Antshel et al. 2008). In a third study by Antshel et al. 2009, adults who were gifted without ADHD, gifted with ADHD, and not-gifted with ADHD were compared. The gifted/ADHD group had a lower quality of life, poorer familial and vocational functioning, more functional impairments, and more comorbidities than the general population. The authors concluded that individuals (including children) with high intelligence who also had ADHD had characteristics that were consistent with the



diagnosis of ADHD among individuals (including children) with average IQ, and that the diagnosis of ADHD is valid among high IQ individuals (including children) based on the findings of these three studies.

Concerns about diagnosing ADHD in children with high IQs stem partly from the perception of ADHD as an illness with a significant cognitive component. Studies have showed that children with ADHD were more likely than control participants to have repeated a grade, despite having similar IQ levels. The fact that one-fifth of the participants of the study were held back demonstrates that ADHD can affect academic achievement even in gifted/high IQ youngsters. This discovery is notable because it contradicts the notion that ADHD symptoms in gifted/high IQ children are merely an expression of boredom with too easy education. Rather, it implies that ADHD obstructs learning and achievement. Taken together, these findings appear to indicate that ADHD is a valid diagnosis among children who are gifted as also suggested by others (e.g., Antshel et al. 2007; Minahim and Rohde 2015; Rommelse et al.

2015), and gifted children might tend to be less inattentive than non-gifted ADHD children.

### Limitations:-

In spite of the above theoretical contributions, the present study has a number of limitations, which provides opportunities for further research in future. First, the lack of review material specialized in the context of valid diagnosis among individuals with high IQ or giftedness. Secondly, the current study was not backed up by empirical study. Moreover, the various researches that were analyzed for findings in the current study also lacked empirical support due to lesser known population in this area and large number of misdiagnosis or dual diagnosis that can happen in this area.

### Conclusion:-

Attention deficit hyperactivity disorder, recognised in DSM-5 and as hyperkinetic disorder in ICD-10, is a common childhood mental health disorder which seems to have a wide range of prevalence rate throughout the world. The present study aimed at analyzing the related literature present in the context of ADHD and also aimed at finding whether ADHD was a valid diagnosis under the circumstances of high IQ or giftedness and in the context of the related literature, it was found that co-occurrence of ADHD and high IQ or giftedness is certainly possible and diagnosis of ADHD can be valid in individuals with high IQ. Although there are certain factors that can give misleading results or can result in misdiagnosis of ADHD in gifted people, but the previous studies have concluded that the co-occurrence of both ADHD and high IQ is still possible, but the care needs to be taken while assessing the IQ and the clinicians must use their expertise to properly differentiate between signs and symptoms of ADHD and IQ as both of them have certain similarities. Certain other disorders also show some similar signs and symptoms, Therefore, conditions of both ADHD and giftedness must be kept in mind while assessing the individuals.

### Recommendations:-

It is critical that children diagnosed with ADHD also be tested for giftedness to avoid a misdiagnosis. Children with ADHD who have not had their giftedness examined are unlikely to receive a suitable education. Baum, Olenchak, and Owen (1998) recommended

that "Children who fail to satisfy test score criteria for giftedness and are later diagnosed with ADHD should be retested for the gifted programme."

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