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A STUDY OF COGNITIVE BEHAVIOURAL THERAPY OF CHILDREN WITH ATTENTION DIFICIT HYPERACTIVITY DISORDER (ADHD)

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ABSTRACT:

Over the last few years there has been an increase in the incidence of HDAD among children all over the world. In India, though not many children are clinically diagnosed with HDAD children, the number of children who show symptoms of HDAD as given in the DSM IV R criteria has been steadily increasing. In such a scenario, it becomes necessary to study the psychological characteristics of these children and the effect they have on their adjustment. In the present study, an attempt has been made to compare Self-perception, Emotional literacy and Behavioural adjustment of children with HDAD and children without HDAD. The study was carried out in three phases, pre assessment phase, intervention phase and post assessment phase. The study also examined the efficacy of Cognitive Behaviour Therapy (CBT) in the improvement of Self-perception, Emotional literacy and Behavioural adjustment of children with HDAD.

KEYWORDS: *Cognitive Behavioural, Therapy, Children, Attention Deficit Hyperactivity Disorder, Self-perception, Emotional literacy, Cognitive Behaviour Therapy.*

INTRODUCTION:

It is normal for young children to be overactive, over emotional, over impulsive and less attentive than adults. All these characteristics make them exhibit the typical childish behaviour that gives us, adults, an opportunity to correct them and mould them into well-behaved young adults. Most children do outgrow their impulsivity and hyperactivity with age and maturity. However some children showing severe attention problems, severe hyperactivity, lack of inhibition and may continue to behave in this manner through late childhood and show severe behavioural problems during adolescence, which make their parents, caregivers and teachers think they should have paid attention to them earlier.

'Attention' refers to a group of processes that enable us to select those sensory inputs which are important to us and to some extent, exclude those which are not. Orienting processes are evident in humans from birth and their function is to turn our attention to significant sources of information. Attention is defined as concentrating and focusing mental resources. Attention is an essential feature of cognitive process. It encompasses various components, such as general alertness including tonic and phasic arousal, selective attention including conscious and preconscious modes and vigilance reflecting the amount of conscious effort in a given act (Posner and Rafal, 1987). Attention is clinically manifested

by conscious acts and levels of arousal and is psychometrically measured in terms of its span, speed of information processing, mental tracking and focussed attention. Assustained cognitive effort presupposes as intact attention, impairment of any of attentional processes results in poor psychosocial adaptation in daily living.

HYPERACTIVITY DISORDER AND ATTENTION DIFICIT (HDAD)

In the early 1900s, a British paediatrician, George Still, first documented and discussed the symptoms of inattention, impulsivity and hyperactivity as a specific condition. But it remained unnamed until the early 1970s when it began to be described as Minimal Brain Damage or Minimum Brain Disorder (MDD). Further research showed that the condition was the result of a biochemical, biological disorder, and not "damage" to the brain. In 1968 the American Psychiatric Association introduced the term 'Attention Deficit Disorder' (ADD) in its 'Diagnostic and Statistical Manual of Mental Disorders' (DSM II). The definition provided forthis disorder, while continually updated, has been purely behavioural; that is, professionals rely entirely on a defined constellation of subjectively observed behavioural characteristics in the home, at school, and in social situations in order to diagnose the disorder.

Cruickshank (1986) described two types of hyperactivity: Sensory hyperactivity and Motor hyperactivity. Children with a sensory hyperactivity have an extremely short attention span and are distracted by the visual and auditory stimuli around. They find it extremely difficult to stay focussed on academic tasks.Children with motor hyperactivity are constantly twisting, squirming, bending and manipulating things they can get their hands on. Playgrounds and other open spaces with several stimuli cause the hyperactive children to overreact by running, shouting, and making a lot of noise. DSM IV (1994) states clearly that no laboratory tests or specific physical features have been established as diagnostic criteria for the assessment of HDAD. Diagnosing HDAD has always presented a challenge. The behavioural criteria that have been specified, namely inattention, low frustration tolerance, impulsiveness, poor organisation of behaviour, distractibility, and hyperactivity, are exhibited to some extent by all children at one time or another. Diagnosis is complicated further by the fact that these symptoms frequently appear in other disorders as well, such as learning disability, tourette's syndrome, conduct disorders, phobic and anxiety disorders, lead poisoning, foetal alcohol syndrome, depression, mania, substance abuse, and even some seizure disorders. These facts have raised significant problems for both doctors and parents, and have led to the suggestion that HDAD is being over diagnosed, particularly in the United States.

A diagnosis of HDAD requires a thorough evaluation that optimally includes multiple methods and informants. A diagnostic evaluation for HDAD can be conducted by a number of specialists including but not limited to psychologists, psychiatrists, educational specialists, neurologists and paediatricians. Owing to the high prevalence of HDAD, the limited number of specialists, the American Academy of Paediatrics (AAP) issued a set of consensus guidelines related to HDAD assessment and treatment. The guidelines summarize the empirical literature and make recommendations to community-based physicians regarding best practice procedures. Assessment recommendations emphasize the importance of collecting parent and teacher rating scales, using DSM-IV criteria as the basis for making an HDAD diagnosis and evaluating for co morbid conditions. The history of diagnosing HDAD can be traced back to 1902, when the disorder was seen as a fundamental deficit in children's ability to inhibit behaviour. Over the years researchers saw it as a problem of how uninhibited behaviour affects the child's understanding of rules, instructions, and the child's internal voice or 'conscience' that generally helps the child to control behaviour. Over the next few decades, clinical scientists shifted from defining the disorder and concentrated more on its possible causes. Involvement of the brain functions in this disorder led the scientists to call it, brain-injured child syndrome. But when many children were found to have no underlying brain damage, the term was softened somewhat to minimal brain dysfunction. Later, the focus on behaviours such as hyperactivity led to the disorder being called hyperactive child syndrome. The concept was then widened in the 1970s to acknowledge that deficits in impulse control and sustained attention were equally problematic for those with HDAD.

Research subsequently shifted away from studies of activity level to studies on the nature of attention, its different types, and the types that might be involved in the disorder. At that point the disorder was renamed Attention Deficit Disorder (ADD, with or without hyperactivity). As clinical research advanced , it became clear that the hyperactivity and impulsiveness seen in children diagnosed as having ADD with hyperactivity were highly related to each other, suggesting that they formed a single problem of poor inhibitory control. In addition, research also showed that this problem was as important as the problems with attention in distinguishing HDAD from other childhood disorders. Consequently the term was changed slightly in 1987 to Hyperactivity Disorder and Attention Dificit, its current name (Barkley, 2000).

Today most clinical professionals – physicians, psychologists, psychiatrists, and others believe that HDAD consists of three primary problems in a person's ability to control behaviour: difficulties in sustained attention, impulse control or inhibition, and excessive activity. The prevalence of HDAD in the United States is 2% to 18% and a current study mentions 8%. The condition is 6 times more prevalent in males than in females (United States Public Health Service, 2001). The prevalence in India is 10% to 20% (Malhi and Singhi, 2000) A meta-analysis of 175 studies worldwide on HDAD prevalence in children found an overall estimate of 7.2% (Rae et al, 2015).

DSM-IV-TR DIAGNOSTIC CRITERIA FOR HYPERACTIVITY DISORDER AND ATTENTION DIFICIT

The DSM-IV diagnostic criteria define three HDAD subtypes based on the presence of inattention and hyperactivity/impulsivity symptoms: Predominantly Inattentive type, Hyperactive /Impulsive type and Combined type. In order to meet DSM IV diagnostic criteria for one of these HDAD subtypes, the child must have six of nine symptoms in either or both the inattention or hyperactivity/impulsivity symptoms domain, must have a history of symptoms starting in early childhood (prior to age 7 years), must demonstrate impairment in more than one setting, and must show clinically significant academic, social or occupational impairment. For HDAD, DSM-IV-TR differentiates three types of symptoms. The first includes problems of inattention. Children may appear not to listen to others, may not pay enough attention to details and make careless mistakes. The second type of symptom includes hyperactivity, which includes fidgeting, difficulty sitting still for a long time and always on the go. The third type of symptom is impulsivity, which includes inability to wait for their turn to do tasks or to answer questions. Either the first type (inattention) or the second and third (hyperactivity and impulsivity) domains of symptoms must be present for someone to be diagnosed with HDAD.

The DSM-IV criteria define 3 subtypes of HDAD

- HDAD primarily of the inattentive type (HDAD/I, meeting at least 6 of 9 inattention behaviours)
- HDAD primarily of the hyperactive-impulsive type (HDAD/HI, meeting at least 6 of 9 hyperactive-impulsive behaviours)
- HDAD combined type (HDAD/C, meeting at least 6 of 9 behaviors in both the inattention and hyperactive-impulsive behaviours)

Current research demonstrates that the main symptoms of inattention, hyperactivity, and impulsivity represent the literal tip of the iceberg and there are several other symptoms and traits that impact greatly upon the child's academic and social performance (Lavoie, 2007). The academic performance is hampered, especially as the children progress to higher classes in school. Inattention and impulsive behaviour also reduce their motivation to learn and they are likely to become underachievers. Many of them also have learning difficulties. They show social and disciplinary problems. They show disruptive behaviour in classroom which hampers their ability to learn as well as other children. Children with HDAD are likely to be unpopular with peers and rejected by them. Problems with peers combined with frequent negative feedback from parents and teachers often result in low self-esteem amongthese children. A low frustration tolerance and aggressive behaviour is often seen in HDAD children. They fail to understand and express their emotions appropriately. Their low self-perception coupled with low emotional intelligence affects their behaviour.

CAUSES OF HDAD

Scientific research on the causes of HDAD has focussed on disorders in the braineither brain injuries or abnormal brain development (Barkley,2000)

1. Brain injuries and HDAD

For almost 100 years scientists have noticed similarities in behaviour problems between children with HDAD and people who have suffered damage by injuries to the front part of the brain, known as the orbital-frontal region. This region is one of the most well developed in humans compared to animals and is believed to be responsible for inhibiting behaviour, sustaining attention, employing self-control, and planning for the future. However statistics show that fewer than 10% of children with HDAD seem to have suffered from brain injuries, therefore other neurological causes may be involved.

2. Abnormal brain development in HDAD

Some structural differences have been found in the brain of children with HDAD. Hynd, Marshall, and Gonzalez (1993) using Magnetic Resonance Imaging (MRI), found that the caudate nucleus (an important structure in the pathway between the frontal portion of the brain and structures in the middle of the brain known as limbic system) of 11 children with HDAD was somewhat larger on the right side than on theleft, particularly in the males. This shows that the left side of the caudate is not as well developed as it should be in children with HDAD. More recently studies found that in the right frontal region, several structures in the basal ganglia and certain regions on the right side of the cerebellum were significantly smaller in children with HDAD.

3. Brain Chemistry

Research shows that certain neurotransmitters, such as dopamine and norepinephrine are deficient in children with HDAD. This deficiency causes behavioural problems in HDAD children.

4. Brain Activity

Many studies have compared the electrical activity in the brains of those with HDAD to those of children without HDAD, using an electroencephalograph. The studies found that the brain electrical activity of children with HDAD is less than that seen in children without HDAD, particularly over the frontal area. There is also deficient blood flow to the frontal area, particularly to the striatum region of the caudate nucleus. This region is important for inhibiting behaviour and sustaining attention (Lou, Henriksen, Bruhn, 1984) Studies using Positron Emission Tomography (PET) scans reported low brain activity in the frontal region. Certain medications such as anticonvulsants (phenobarbital and dilantin) used in the treatment of seizures, lower brain activity and lead to inattention and hyperactivity in children taking these medications.

5. Environmental factors

Nicotine from cigarette smoking and alcohol consumption during pregnancy has been shown to cause significant abnormalities in the development of the caudate nucleus and frontal regions of the brain in children. Research indicates that alcohol overconsumption during pregnancy leads to inattention and hyperactivity in children. There is some scientific evidence that high levels of lead in the bodies of young children may be associated with a higher risk for hyperactive and inattentive behaviour. Research also shows that children who have been repeatedly exposed to an aesthesia at a young age were twice as likely to develop HDAD. The research found that risk does not change with one exposure to an aesthesia, but a second exposure increased the HDAD incidence.

6. Genetic factors

Family studies and twin studies show that, HDAD is inherited. Scientists have found that if one twin has symptoms of HDAD, the risk that the other will have the disorder is as high as 80% to 90%. Recent studies have confirmed that at least two genes may be related to HDAD. One of these, called the D4RD, is related to the personality dimension known as novelty seeking. Children and adults with HDAD are more likely to have a form of this gene that makes them display more novelty seeking in their personality. They show more sensation seeking behaviour, risk taking, impulsiveness, and restless behaviour than is typical for the normal population. A second gene alsohas a particular form that is more commonly associated with HDAD than would be expected to occur. This gene may help to regulate

dopamine activity in the brain by influencing how quickly dopamine is removed from the synapse. Scientists are researching the role of multiple genes in the cause of HDAD.

EXECUTIVE FUNCTIONS IN CHILDREN WITH HDAD

Executive functions are functions of the brain that activate, regulate, and integrate a variety of other mental functions. Executive functions refer to the internal ability of the brain to manage learning activities and behaviour(Zeigler 2000). These functions play a central role in our ability to think and solve problems. In children with HDAD, there is a developmental delay in the executive functions of the frontal lobe. Barkley (1997) suggests that executive functions refer to those self-directed actions of the individual that are being used to self-regulate. He has proposed a theory of prefrontal lobe functions or the executive system to explain the symptoms of HDAD. According to Barkley, inhibitory problems are what define the problem of children with HDAD, and not attention deficits. Barkley identifies four executive functions:

1) Nonverbal working memory.
2) Verbal working memory.
3) Covert self –directed affect/ motivation/ arousal and
4) Reconstitution.

A prerequisite to the development of executive function is the ability to inhibit responses. Children with HDAD have difficulty inhibiting their response to immediate stimulus in their environment and function in the here and now. They seek immediate gratification and often do not learn from experience.

Components of Executive Function

Based upon material from Barkley, Brown, and Gioia, the following are eight general components of executive functions that impact school performance as outlined by Zeigler (2011).

1. Working memory and recall (holding facts in mind while manipulating information; accessing facts stored in long-term memory; includes an impaired sense of time.)
2. Activation, arousal, and effort (getting started; paying attention; finishing work)
3. Controlling emotions (ability to tolerate frustration; thinking before acting or speaking)
4. Internalizing language (using “self-talk” to control one’s behaviour and direct future actions)
5. Taking an issue apart, analyzing the pieces, reconstituting and organizing it into new ideas (complex problem solving).
6. Shifting, inhibiting (changing activities, stopping existing activity, stopping and thinking before acting or speaking)
7. Organizing/planning ahead (organizing time, projects, materials, and possessions)
8. Monitoring (self-monitoring and prompting)

CONCLUSION

Managing children with HDAD by parents and teachers is not an easy task. Most teachers and parents complain about their hyperactivity and disruptive behaviour. An understanding of the children’s emotions and frustrations would probably help the caregivers to deal with them better. The present study answers the research questions that there is a significant difference between children with HDAD and Non HDAD children on Self-perception, Emotional literacy and Behavioural adjustment. The study also demonstrates the efficacy of CBT in enhancing Self-perception, Emotional literacy and Behavioural adjustment among children with HDAD. The therapy has also led to a decrease in the core symptoms of HDAD, namely inattentiveness, hyperactivity and impulsiveness as reported byparents and teachers. Thus we can say that Cognitive Behaviour Therapy (CBT) is an effective technique in the management of children with HDAD.

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