

## **Alternate Therapy: A boon for symptoms like ADHD in children?**

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### **Abstract**

Neurodevelopmental disorders such as symptoms like Attention Deficit Hyperactivity Disorder (ADHD) is found to be rising alarmingly as evidenced by metaregression analyses estimated worldwide at 5.29 percent and 7.1 percent in children, and adolescents with an increase by 42 percent between the years 2003 and 2011. In the Indian scenario a survey report in 2011 by the Associated Chamber of Commerce and Industry of India estimated the rise in prevalence to have increased from 4 percent to 11 percent from 2005 to 2011, accounting the data only from ten major cities. The onset begins from childhood and continues through adolescence and adulthood. The main characteristics of the disorder are inattention, impulsivity and hyperactivity. Symptoms like ADHD are a spectrum disorder with many other comorbid disorders overlapping and making the diagnosis difficult and also posing a challenge for children and their families. The other factors leading to the delay in diagnosis are lack of biomarkers, diagnostic tools, poor awareness and knowledge about the disorder. An early diagnosis and interventions help in the management of symptoms like ADHD. Interventions with alternate therapies like Neurolinguistic programming (NLP), and Sensory Integration (SI), have been used successfully to manage and overcome symptoms like ADHD. When these therapies are learnt by parents and practised with their children at home, on a regular basis it becomes much easier for them to cope with and help their children lead a near normal life.

Keywords: Symptoms like ADHD, Alternate therapies, Neurolinguistic Programming, Sensory Integration.

### **Symptoms like ADHD in Children**

Symptoms like Attention Deficit Hyperactivity Disorder (ADHD) are a neurodevelopmental disorder with an early childhood onset as early as three years(1). The inattention tends to appear later than the impulsive and hyperactive behaviours which are the core characteristics of the disorder and are reflective in the growing up years (2). Its occurrences date back to as early as the seventeenth century, Sir Alexander Crichton (1798) was the first one to document the descriptions similar to the inattention subtype of symptoms like ADHD (3). The Diagnostic Statistical Manual of Mental Disorders (DSM V) and International Classification of Diseases, 10<sup>th</sup> Revision (ICD 10) state the diagnostic criterion for symptoms like ADHD. Symptoms like ADHD are the most underdiagnosed or misdiagnosed conditions affecting 3-6 percent of school children (4). The reason for this could be the comorbidity, a medical term for two or more disorders that occur at the same time with the primary disorder or disease. The National Survey of Children's Health, reported that psychiatric and physical comorbidities were very common in children with symptoms like ADHD (5). Limitations with executive functioning, motor developments and sensory integration makes children with symptoms like ADHD lag behind as compared to their peers. It is therefore crucial to have concrete knowledge of its origin, an appropriate genetic biomarker for diagnosis, evaluation, treatment and interventions.

Comorbid conditions in children with symptoms like ADHD may include autism spectrum disorders, sleep disturbances, temperamental factors and atopic eczema. The developmental conditions like dyslexia, encopresis and enuresis may occur coinciding with the emergence of clinically significant symptoms like ADHD. Conditions like tic disorder, depression, suicidality, anxiety disorder, obsessive compulsive disorder, conduct and substance use disorder, obesity, Bipolar disorder and personality disorder occur as comorbid disorders in children with symptoms like ADHD (6).

Children with symptoms like ADHD are also vulnerable to addictions like substance abuse, smoking and alcohol (7). Children with symptoms like ADHD may often complain of frequent muscle aches and pains, abdominal and headaches which could be construed as excuses for not completing tasks or school refusal by parents and teachers.

Although historically symptoms like ADHD have been primarily identified in boys (8), however girls also suffer from the symptoms and the male to female ratio is 10:1 (9). The need to provide interventions is to reduce the delays in development, enhance remedial help for the presenting complaints and encourage parents to accept and adapt a better quality of life for the family (10).

### **Alternative Interventions for Symptoms like ADHD**

Psychological interventions are actions or activities performed to bring about changes in people to modify their emotional state, behaviours, feelings or cognition. There is a wide range of intervention strategies which cater to various types of issues (11).

There are various types of interventions some are traditional such as pharmacotherapy, cognitive behaviour therapy and behaviour modification therapy. Some interventions are unique and unconventional in nature and are called as alternate therapies. They are a source of providing interventions to many (12).

The following are some examples of such interventions namely play therapy, neurolinguistic programming, sensory integration therapy, art therapy, mindfulness therapy and yoga.

Play therapy has been found to be equally effective as an alternative therapy across age, gender and the presenting problem (13). Play therapy is defined as a dynamic interpersonal relationship between a child and a person of any age. The therapist trained in play therapy worksthrrough play, for the child's natural medium of communication, for optimal growth and development. Play involves a child's mental, physical and emotional self in creative expression and can involve social interactions (14).

Neurolinguistic Programming (NLP) is an emerging alternate therapeutic process to promote self through sensory awareness (Visual, auditory, gustatory, tactile and kinaesthetic), attentional regulations, awareness of feelings and thoughts, and becoming aware of ones' surrounding's and the relationship and connect between people, places and things to bring about behavioural modifications (15). NLP was developed in the U.S.A. between 1972 and 1981 (16).

It is being used by many professional practitioners like teachers, counsellors, market researchers, and well-recognised mode of psychotherapy in UK, accredited by the UK Council for Psychotherapy (17). NLP is about changing the way individuals approached life; the way they think and act in all domains. The goals of NLP, is to enable learners to express their feelings, emotions and experiences freely through a natural language (18). The use of NLP brings about significant behaviour changes (19). NLP is a boon for educational process in an exciting direction (20).

The presuppositions are used to strengthen their self-esteem and confidence. NLP presuppositions represent the generalisations of our experiences and behaviours (21). When children are confident, they are able to communicate and express themselves better. NLP uses the modelling principles (imitative method) as dynamic learning methods to release the natural learning capabilities bymeans of creating awareness, exploration and discovery. Exploring different methods of thinking, learning by doing, children experience the art of learning (22).

Children with symptoms like ADHD do not just exhibit behaviour problems but may have different styles of learning, thinking and attending (23). It is important to understand each child's combination of learning styles to cater to them and simultaneously encouraging the development of all the other potential abilities (24). Practicing NLP strategies and techniques allows use of the classic five senses which encourages the development of self-awareness, focus on using specific thinking strategies and skills, communication and learning different ways to approach tasks to achieve desired outcomes. Parents, teachers and educators have a moral commitment to bring about a difference to a child's potentials and abilities in general and more specific to children with symptoms like ADHD (25). NLP has a greater potential and can be used effectively even in classroom situations (26).

Sensory integration (SI) therapy is another alternate therapy used to enhance the sensory processing deficits in children which interferes with the development of appropriate behaviour,

language, cognition and social-emotional areas. The theory of sensory integration therapy was developed in 1960 by Jeanne Ayers, a licensed clinical psychologist and an occupational therapist. SI was based on the studies in the areas of neuromuscular function, physical development and neuroscience (27). SI therapy was developed based on Ayers' hypotheses that deficits in neurobiological processes were related to learning disabilities (28).

The seven basic sensory systems within the nervous system in our body are: visual (sight), auditory (hearing), gustatory (taste), olfactory (smell), tactile (touch), vestibular (sense of movement and balance), and proprioception (sense of muscle and joints) (29).

The goal of SI therapy is to improve "the way the brain processes and organises sensations" (30). The brain is composed of systems that are hierarchically organised and functions as an integrated whole. Based on the premise that plasticity exists within the central nervous system, the therapy interventions for SI dysfunction is developed strictly on the theoretical constructs of the typical sensory integration processes and the patterns of the sensory integration dysfunction (SID). The therapy interventions are focused to enhance the efficiency of the central nervous system to interpret and use sensory information for functional use and bring about the required changes in the brain (31). SI is a continuous process with each level of integration making it possible to move on to the next level (32). The vestibular, tactile and the proprioceptive systems provide the foundation for certain skills to be formed like the auditory language and the eye-hand coordination. The three systems in the next level interact with the visual and the auditory systems to develop a meaningful association that is experienced as touch and movement (33).

Majority of children with symptoms like ADHD have motor coordination problems. They find it extremely difficult to write for long and tire easily with physical activities. Various activities using play method enhances development of the sensory system and strengthens the muscles to help children overcome their challenges and inability to perform tasks, improve proprioception and spatial balances (34). The activities and exercises used in SI therapy are simple and interesting for children. SI therapy interventions have been found to have positive effect on children with symptoms like ADHD (35).

Alternate therapies like dance, drama, music, art allows parents with more options as alternate treatments for their children. Dance has been recorded as psychotherapeutic intervention by Carl Jung in 1916. Dance movements help in understanding one's own body and influences coordination, concentration, memory, and confidence. The dance movements have also been known to help in the overall cognitive development, dexterity and control of motor movements. In a study, it was found that the music therapists use a combination of music and movement with the therapy goal as the behavioural treatment (36).

Art therapies allow children to express themselves about the issues surrounding their diagnosis, medications, academic pressure, peer relationships, school and punishments. It can also facilitate a better understanding about the child and enhance the assessment and treatment. Drawing of mandalas indicated a therapeutic technique in the art therapy as alternative intervention for many of the psychological disorders (37).

Art is an educational therapeutic intervention for children as drawings made during the art therapy reinforces learning. Colouring adds to the expressions, it reduces the impulsivity improves calmness and increased focus on tasks for children with symptoms like ADHD. Children with symptoms like ADHD perform better in a structured, consistent and predictable routine. (38)

The practice of dance movements have been found to be useful for children with symptoms like ADHD as it improves the cognitive development, dexterity, and control of motor movements. Dance helps in socialization and improves interpersonal relationships (39). Dancing with music has been very effective in movement, space, stability, body shapes and expressions with children. As dance is nonverbal, spatial, kinaesthetic and universal it brings about sensory integration and positive behavioural changes in children practising it (40).

Drama is an expressive form of art therapy which allows children to express their emotions and feelings freely. With the help of modelling techniques children are taught to express themselves through poetry, enacting and storytelling. Such therapies help to improve memory, planning,

coordination, attention, alertness and multitasking in children with symptoms like ADHD. As these therapies are action oriented and experiential, children enjoy these activities while learning (41).

Yoga when used as a method for treating symptoms like ADHD in children has shown benefits (42). Yoga has been an ancient Asian practice to have a healthy mind and body. The physical posture (asana), breathing (pranayama) and the meditation techniques have been found to improve cognitive domains like attention, concentration, memory, intelligence, executive functions and several physiological functions which are symptomatic in children with ADHD (43). Practising yoga exercises regularly helps children to relax and learn discipline which may help them to manage the symptoms like ADHD. Yoga based interventions have also been effective in treating the comorbid disorders in children with symptoms like ADHD (44).

2,500 years ago, the practice of mindfulness was developed in India. Mindfulness therapy as a method for treating children with symptoms like ADHD has been found to be beneficial as it brings about better balance, alertness and reduces negative thoughts. Mindfulness therapy works by changing the attitude to the symptoms, rather than changing the symptoms themselves (45). Children with symptoms like ADHD have problems with attention and focus. Mindfulness therapy is used to practice focussing skills by directing the attention inwardly to focus on bodily sensations, thoughts and emotions to help children to maintain their focus on "here and now" (46). Focussing in the present moment helps to connect with the senses and the mind (47).

### **Need for Alternate Therapies as Interventions for Symptoms like ADHD**

The psychopharmacological treatment is being used currently may provide short term improvements in behaviour and academic performance. But children are required to be on medication long term to have its benefits. Stimulants and non-stimulant medications are used more commonly to treat the core symptoms of hyperactivity, impulsivity and inattention of symptoms like ADHD (48). The side effects of these medications include irritation, decreased appetite, daydreaming and tics, depression, hallucinations, zombie appearance, exacerbated mood disorder symptoms, headaches and sleep disturbances (49). The side effects of agonists include dry mouth, sedation and rare hallucinations. Stimulant treatment is associated with sleep dysregulation, Insomnia or delayed sleep-latency is a common initial side effect of stimulant medication (50). Seizures, lethargy and agitation are also manifestations of ADHD medications (51). Therefore there is a strong need to introduce alternate therapies as interventions for symptoms like ADHD.

In spite of decades of research on the prevalence, diagnosis, and short-term treatment strategies, we are yet to formulate an appropriate strategy or system of education to improve the educational outcomes of children with symptoms like ADHD. The optimal management of children with symptoms like ADHD requires an early diagnosis, intervention, close collaboration of parents, health care providers and teachers. There is a huge lacuna in the current educational system. A survey conducted in 2002 (52), reported that teachers perceived the need for more training to understand symptoms like ADHD in children. Findings of a meta-analysis study (53) concluded that regular non-contingent exercises showed greater reduction in disruptive behaviour in participants with hyperactivity. It is important for the educators to build in alternate therapy interventions into the school curriculum in order to help children with symptoms like ADHD complete their education successfully. Academic success is often dependent on the ability to attend to tasks, teacher and classroom expectations only when there is minimal distraction. Such skills enable the child to acquire the required information, participate in the classroom activities and discussions and complete assignments (54).

The chronic nature of symptoms like ADHD can have significant impact not just academically but also on family and relationships. There could be strained relationships between parents and children, between parents, or with extended family. Siblings of children with symptoms like ADHD may feel neglected and could resent the amount of time and attention their sibling get as compared to them. They may even be angry and sad with their sibling for disrupting the family and with their parents for allowing it. Due to the disruptive behaviour of the child with symptoms like ADHD in the family, tendency to have fewer contacts with others, including extended families may lead to isolation and increased stress (55).

Strained relationship or misunderstandings between parents having a child with symptoms like ADHD could arise due to disagreements on the best way to cope with the conditions. Each parent may have different reactions to specific behaviour of the child. Most often parents feel frustrated with the child or even with themselves and begin to feel guilty. Sometimes parents tend to feel inadequate about the knowledge of the disorder and inability to cope with it. Monitoring medications and dealing with the side effects of it could add more stress not only for the child but to the family members as well. Behaviours of children with symptoms like ADHD can be very difficult and worrisome which could spill into the rest of the family members with more conflict and a disturbed daily routine (56).

It is important for families to participate in alternate therapy interventions to effectively manage and cope with their children. Just as treatment for symptoms like ADHD is multimodal, so should the involvement with the child be a team effort. Parents, teachers and clinicians/therapists should to work in tandem to bring about best results of the therapy interventions (57).

Caring for a child with symptoms like ADHD is expensive and time consuming. According to reports from Associated Chambers of Commerce and Industry in India (2011) the prevalence is on the increase from 4 percent to 11 percent from 2005-2011; with its chronic and debilitating impact on the daily life functioning of children, their parents and teachers has made symptoms like ADHD a major public health concern (58). The cost of treatment of children diagnosed with symptoms like ADHD could include medications, interventions, special education, extra coaching classes or tuitions and overall health care which could impact the family expenditure (59). The non-availability of data or studies with regard to the cost in treatment for symptoms like ADHD could not be ascertained. However the economic evaluation known as extended cost effectiveness analysis reported in 2016 for Schizophrenia, a neurodevelopmental disorder suggested USD177.42 (INR 11,532/-) per case annually (60). It included psychosocial treatments, antipsychotics and hospitalizations and excluded other potential costs which are similar to that of children with symptoms like ADHD.

The economic burden of symptoms like ADHD in India varies according to the availability of facilities. Families from rural areas have to travel far and long to the urban cities in order to avail the treatment facilities which could add to the cost of health care for their children and hence could be deprived of the choices (61). Awareness and education for families is a core aspect for managing the challenges of symptoms in their children. Parent training including the older siblings in alternate therapies could be effective in reducing behaviour difficulties, improve academic performances, psychosocial functioning and cost effectiveness.

## **Conclusion**

Symptoms like ADHD are one of the most prevalent neurodevelopmental disorders in school children. The symptoms are often reported by parents and teachers as problems with either behaviours or learning capabilities. The occurrence of symptoms like ADHD in children will require multiple diagnoses as the chances of comorbid disorders associated with it are high. Children with symptoms like ADHD generally lag behind their peers due to delay in timely diagnosis and introduction of appropriate interventions. The symptoms could become more prominent and difficult to cope with for children and their families in later years if not diagnosed early. An early intervention can minimize the debilitating impact of the symptoms and thereby help the children to lead a near normal life. Early diagnosis and intervention brings about awareness, knowledge and clarity about the symptoms and allows parents to chart out a way forward for better coping strategies and development of relevant skills (62).

Alternate therapies allow parents to choose from various interventions to reduce and possibly eliminate psychosocial and behavioural disturbances in their children with symptoms like ADHD. Early introduction of suitable therapies considerably reduces the dependence on drugs which have numerous undesirable side effects, some of which could be embarrassing for the child, leading to peer isolation and resultant problems. Hence, it is imperative that parents pick up the first signs of the symptoms like ADHD and through multimodal therapies facilitate the child to be on near par with normally developing children and lead a productive and meaningful life. The key therefore, is early detection, correct diagnosis including comorbidities and multimodal therapy interventions; combined

with a partnership approach between the parents, teachers and therapist that will ensure the best results for children with symptoms like ADHD. With an early diagnosis and for timely interventions, the most feasible method would be for parents to learn the alternate therapies themselves and practice them with their children to help direct them to focused behaviours, make it more cost effective and equip the family to cope with the challenges of the disorder in their children to lead a better life style (63).

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Attention-deficit hyperactivity disorder has become more prevalent in children in recent years, however it is unclear whether this is due to actual higher rates of ADHD or an increased rate of over-diagnosis. Cognitive symptoms are not always obvious in children since they may not know how to describe these symptoms to an adult. Because ADHD can often look like numerous other disorders, the American Academy of Pediatrics (AAP) suggests observing your child in different settings (they may or may not behave a certain way specifically at home or at school), or asking teachers, nannies, friends' parents, or anyone else who spends time around your child what their behaviors typically look like. Patterns of association between attention deficit hyperactivity disorder (ADHD) and substance-use disorders are considered. Recent investigations have found that up to 50% of individuals with continuing ADHD symptoms have a substance-use disorder. ADHD appears to represent an independent risk factor for substance abuse. We review clinical challenges posed by the diagnosis of ADHD in substance-abusing populations. Nicotine dependence is also substantially more common among adults with ADHD (40%) than in the general population (26%). Alternate Therapy: A boon for symptoms like ADHD in children? Rajani Inbavanan. 2017. VIEW 1 EXCERPT. Mental Health in School-Aged Children Prenatally Exposed to Alcohol and Other Substances. Here are the recognizable ADHD symptoms in kids. Here's what you need to know about the symptoms and treatment solutions for this disorder. Are you concerned that your child could be dealing with an undiagnosed case of attention deficit hyperactivity disorder (ADHD)? You're certainly not alone. More than 6 million children in America have been diagnosed with ADHD ; according to one study , 9.4% of children ages 2-17 have received the diagnosis at some point in their lives. ADHD is a commonly diagnosed neurodevelopmental disorder, but that can sometimes come as little relief to parents dealing with ADHD symptoms in kids. The good news is that your child can thrive with ADHD, succeeding at school and in interpersonal relationships .