CHAPTER II

THEORETICAL PERSPECTIVES

THEORIES OF ABNORMAL BEHAVIOR

DIAGNOSIS OF ADHD

PSYCHOLOGICAL ASSESSMENT

MEDICAL ASSESSMENT

DIFFERENTIAL DIAGNOSIS

INTERVENTION OF ADHD

TRAINING PARENTS/ TEACHER
Doubtless understanding the theories that apply to specific disorder is vital to forming proper treatment plans. Actually only through understanding root causes of problems can one properly treat behavior. “Everyone wants to know why things happen. Scientific theories are created to organize what we know and explain what it means. Theories are never complete because there are different ways of looking at what we do know and because there are always some pieces missing from our knowledge. Even an incomplete theory is useful, however, if it provides a perspective for examining the information we have. A good theory will also help us to decide what new information we need. In this part first theories of abnormal behaviors are explained and then a review of the theories of ADHD are given.

2.1. THE THEORETICAL PERSPECTIVE OF ABNORMAL BEHAVIOR

There are many theories about abnormal behavior that in this section will be review some theoretical perspective that are particularly relevant to the understanding of ADHD.

2.1.1. The biological perspective

Major impetus for the biological point of view came from finding about the relationship between bodily infection and defect on the one and disordered behavior on the other. Recent information about the role of biological factors supports the argument that such factors are important to some. But certainly not
all, mental condition. Modern advances in several areas of biology and medicine have continued to motivate researchers. For example, equipment and techniques like the positron emission tomography (PET) scan and computerized tomography (CT) scan, which make it possible to see how the brain works without the use of surgical or other invasive procedure, are beginning to permit previously unthought-of studies of the relationship between behavior and the brain. And the research on heredity and genetics has shown that certain chromosomal defects are responsible, for metabolic disorder, such as phenyl-ketonuria, that in turn may lead to specific forms of mental retardation. Most people distinguish between the body and mind, although the meaning attached to these words vary widely. Body refers to organs, muscles, bones and brain; mind usually refers to attitudes, feeling, and thoughts. Although we generally speak as if the worlds of body and mind are actually an intellectual invention rather than a reality, a number of biological factors influence the behavior of organisms, how we behave and think depends not only on the action of each by itself but also on the interrelationship among them. Genetic factors, the brain and nervous system, and the endocrine glands all play important roles in psychological processes and in abnormal behavior. (Sarason & sarason, 2001)

2.1.2. The Genetic factors:

The field of genetics has expanded dramatically in recent years. Evidence that genetic abnormality account for a significant number of medical problems has led researchers to seek heredity roots for maladaptive behavior as
Available evidence suggested that genetic factors may contribute to such diverse disorders as schizophrenia, depression, criminality, and mental retardation. The idea that people can inherit certain behavioral tendencies arouses skepticism among some people who feel it conflicts with egalitarian ideals and conjures up a specter of biological determinism. Yet research, particularly within the past two decades, has shown that few dimensions of behavior seem to be immune to the effects of genetic factors. A major factor in some genetic abnormalities is irregularities in the structure or number of an individual’s chromosomes.

2.1.3. The Nervous system and the Brain

The nervous system is the body’s master control center. It consists of increasingly complex structure that appear as one moves up the evolutionary scale. The three pound grapefruit size brain that one carries around inside the skull is the most complex structure in the known universe.

Normally in the brain the prefrontal cortex will speed up activity when there is work to concentrate on. But with the type of inattentive ADHD the prefrontal cortex actually slows down when placed under a work load, like reading or doing home work. This part of the brain looks normal when ‘at rest,’” but actually looks like it is starting to fall asleep when asked to “go to work.” This makes it treated to no attention to school work, get homework done, listen to the teacher, clean your room. and so on actually observed hundreds of times with subjects EEG. When at rest, the brainwave activity is pretty normal. But once the subject is asked to read, or to do a math worksheet, the subject’s
brainwave activity begins to look like the subject is falling asleep. And many times they do fall asleep this makes school hard for these students.

2.1.3.1. The Temporal Lobes and ADHD

Some people with ADHD can be very hard to live with. They can have gigantic mood swings, get very angry for almost no reason, and be nearly impossible to live with on a daily basis. The key to look for with this type of ADHD is anger outbursts for little or no reason. People with decreased activity in the left temporal lobes can especially have problems with temper outbursts, aggressive behaviors, and even violence toward animals or other people.

Inattention, just like in other kinds of ADHD because during concentration there is a decrease in activity in the pre-frontal cortex and hence individuals show the factoring characteristics.

- Being easily irritated or frustrated;
- Aggressive behaviors;
- Dark moods, big mood swings;
- Impulsivity;
- Breaking rules, in trouble a lot, fights a lot;
- Defiant toward authority, disobedient toward parents and others;
- Can’t get along with others, can be anti-social or just in trouble a lot;
- Often has terrible handwriting and problems learning.
Individuals with this type of ADHD are often treated with a combination of stimulants, like Ritalin, and anti-convulsions (NIMH.ORG 2007).

2.1.3.2. Cortex Normalizes in ADHD

Brain areas that control attention were thinnest in children with ADHD who carried a particular version of a gene in a study by the National Institute of Mental Health (NIMH). However, the areas, on the right side of the brain's outer mantle, or cortex, normalized in thickness during the teen years in these children, coinciding with clinical improvement. Although this particular gene version increased risk for ADHD, it also predicted better clinical outcomes and higher IQ than two other common versions of the same gene in youth with ADHD. "Since this gene version had similar structural effects in healthy children as in children with the disorder, the findings suggest that ADHD is at the far end of a continuum of normal traits," said Philip, Shaw, on the NIMH Child Psychiatry Branch, who led the research. "ADHD likely stems from interactions between several such genes and non-genetic factors" (Shaw, Judith, 2007).

When the NIMH researchers first reported that normalization of right cortex thickening was associated with better clinical outcomes in ADHD, there were few hints of a genetic connection. Yet evidence from several previous studies led them to suspect involvement of an ADHD-implicated version of a gene that codes for a receptor protein that binds to the brain chemical messenger dopamine. This version of the dopamine D4 receptor gene, called the 7-repeat variant, accounts for about 30 percent of the genetic risk for
ADHD, making it by far the strongest candidate gene implicated in the disorder. It's called the 7-repeat because it contains the same repeating sequence in its genetic code seven times. Everyone inherits two copies of the D4 receptor gene, one from each parent, so some people have two copies of the same version while others may carry two different versions.

In the current study, the researchers scanned and determined the D4 gene types of 105 children with ADHD and 103 healthy controls and re-scanned them through their teen years. They found that nearly one-fourth of youth with ADHD and about one-sixth of the healthy controls had at least one copy of the 7-repeat version. Nearly two thirds of the ADHD youth and three-fourths of the healthy controls had the most common 4-repeat version; fewer than one-tenth in each group had a 2-repeat version. While the 7-repeat version was linked to thinner attention-controlling cortex in both ADHD and healthy subjects, it appeared to confer advantage only among youth with ADHD. For example, participants with ADHD who lacked at least one copy of this 7-repeat variant had significantly lower IQs, and more than half of them still had pronounced ADHD symptoms when followed-up about six years later, compared to only 21 percent of those with at least one copy of the 7-repeat variant. There was also a trend toward better overall functioning among those with at least one copy of the 7-repeat variant at follow-up.

Some genes have a good side, even though they're linked to disorder," said Shaw, who noted that other traits linked to the 7-repeat version, such as novelty seeking and impulsiveness, might confer advantage in some settings. "Evidence
suggests that the 7-repeat may be a relatively new variant that may have been favored through evolution because such traits proved adaptive for survival. The researchers are following up with studies on the relationship between cortex thickness and cognitive features of ADHD, such as working memory and the ability to inhibit responses (Jay Giedd, Michele Gornick, 2006).

2.2. PSYCHOLOGICAL PERSPECTIVE

2.2.1. Psychodynamic Perspective

The psychodynamic perspective is based on the idea that thought and emotions are important causes of behavior. Psychodynamic approaches to behavior assume that, to varying degrees, observable behavior (overt response) is a function of intrapsychic processes (covert events). Not all the psychodynamic theories emphasize the same inner events and the same sources of environmental stimulation, but they do agree that personality is shaped by a combination of inner and outer events, with emphasis on the inner ones. Sigmund Freud, the originator of the psychodynamic perspective, believed that eventually all behavior could be explained by bodily changes; however, because so little was known in his time about the relationship between the body and the personality, he actually gave biological factors little emphasis. Nevertheless impressed by Charles Darwin’s theory concerning the importance of emotions, Freud directed his attention to their influence over thought. Freud believed that to understand behavior it is necessary to analyze the thought preceding and associated with it, and that to understand those thought, a
person’s deepest emotions and feelings must be explored. Because thought and feeling are not directly observable, psychodynamic theories must infer them. They relate their inferences about inner processes to important features of overt behavior (Sarason & Sarson, 2001). One branch of modern psychodynamic theory (sometimes called "object relations" theory) is much less concerned about struggles between parts of the mind, and much more concerned about how people understand and represent their relationships with other people. The "objects" in object relations theory are representations of people (how others are experienced, represented and remembered by the person doing the objectification). Object relational therapists note that people's early relationships often set the tone that later relationships will take. This occurs in part because of a phenomena called transference, and also because what you experience early in life seems "normal" to you and you become in some ways drawn to new relationships that help you replicate that original "normal" feeling. This tendency works out well when early relationships are healthy, but very poorly when they are disturbed. People whose early relationships involve abuse or neglect often end up not feeling quite comfortable in later relationships unless those relationships recreate in some fashion those early abusive or neglectful dynamics. Transference occurs when people use representations of older relationships as a means of jump-starting their understandings of new relationships. When an older relationship has been "transferred" onto a newer one, the older relationship will be the point of comparison against which the newer one is judged. The person doing the
transferring may read characteristics or tendencies into the newer relationship that aren't there, simply because they were there in the older original relationship. For example, a young man who has had a difficult and distant relationship with his father, might generally react angrily towards other adult males, but not really have insight as to why he does this. He might end up sabotaging career prospects by alienating potential employers if he can't get a grip. Object relational therapists might help this man by making him aware of his prejudicial pattern, helping him to process his anger feelings in the moment (should he attack the therapist), and by offering a new model of what a relationship can be like (e.g., trusting, trustworthy, non-abusive) which the young man can then transfer to other relationships (Dombeck & Morena, 2006).

2.2.1.1. Psychodynamic Approaches to ADHD

Sociologist Adam Rafalovich discusses the importance of psychodynamic perspectives to the conceptualization and clinical treatment of hyperactivity in the 1920s through 1950s. Psychoanalysts such as Anna Freud postulated that environmental conditions such as problematic family dynamics caused a fragmented ego, and that the resulting anxiety was expressed by children in the form of hyperactivity (Rafalovich, 2001). As mentioned earlier, psychoanalysis was prominent in child psychiatry in the early twentieth century, in the form of the child guidance movement. Psychoanalysis suffered a sharp decline in prestige and authority in the 1960s and 1970s, and subsequently played little role in the treatment and conceptualization of
hyperactivity. Social scientist Andrew Lakoff writes that the psychoanalytic approach to hyperactivity was overwhelmed by the popularity of new medical tools such as standardized questionnaires and the diagnostic criteria in the 1960s, which will be discussed later (Lakoff, 2000).

Many psychologists in the first half of the twentieth century sought a middle ground between the neurological and psychoanalytic approach. The resulting psychological model regarded hyperactivity to be a survival mechanism that children used to overshadow underlying anxiety, but this anxiety was thought to be a result from an organic cause, rather than family conflict. Treatment was not based on addressing the organic defect, but rather on making the child and family aware of the nature of their anxiety and compensating mechanisms. These psychologists found a professional niche practicing in cooperation with psychiatrists and pediatricians who took a more medical approach. These psychologists treated the child’s personal reaction to their brain abnormality, while the medical profession treated the underlying brain problem. Despite this partnership, there was a central contradiction between the medical and psychological perspective: the neurological approach postulated the central problem to be organic-based hyperactivity, and anxiety was regarded as a secondary reaction. Thus the neurological school of thought, believed their method to be more essential as it attacked the problem at its root. Raflovich portrays this tension as a competition between two conceptual models. Members of the neurological school of thought in the 1960s and 1970s, such as Paul Wender, advised that terminology and approaches toward
childhood hyperactivity should be consolidated into a one unified approach. It was this medical model that became dominant. Consequently the medical and neuroscience rather than psychodynamic tradition is acknowledged in internal histories, as the internal historians, along with most other professionals who treat ADHD, belong to this medical tradition. Several ADHD experts anticipate that a developmental approach, which integrates different biomedical and environmental factors, will become more prominent in the understanding of ADHD (e.g., Tannock, 1998 and Olson, 2002). If this does indeed become the case, it will be interesting to see whether the much ignored role of psychodynamic psychiatry and psychology will be discovered in future internal histories of ADHD.

2.2.2. Behavioral Perspective

For John B. Watson (1878 – 1958) an American psychologist who was the founder of behaviorism, developed a thoroughly mechanical affair. The complete personality - by which Watson meant the whole system of overt behavior was built up out of the conditioning process. Although many contemporary learning theorist are not confident as Watson about the simplicity of the process of the behavior acquisition and behavior change, the behavioristic approach continues to exert a powerful influence.

Just as dissatisfaction with a narrow biological orientation was one factor in the development of the psychodynamic perspective, the behavioral perspective developed in part because psychologists found many of Freud’s idea about the mind vague, complex and unstable. These theories thought that
the same behaviors examined by Freud could be explained in a simpler fashion and in way that would make it possible to study them experimentally. The behavioral perspective asserts that human being behave according to the dictates of their environment.

Both the psychoanalytic and behavioral approaches are deterministic, but each finds the source of behavior in a different place. Psychologists using the behavioral perspective focus on learning. They view behavior as a product of stimulus - response (S-R) relationship, not of in trapsychic events. They do not delve into the past or try to get people to figure out why they are the way they are. If the reward is desirable enough, the individual is likely to keep on performing properly as long as the response is reinforced. The response can be either an approach response or an escape or avoidance response.

2.2.2.1. Behavioral Inhibition in ADHD

The concept of inhibition has been widely applied, but remains somewhat mysterious and ubiquitous. While Barkley (1997) applied the concept to executive functions, Gray (1987) applied the concept of inhibition to the BIS system (based on septo-hippocampal impairment), considered to be central in the control of anxiety. Quay (1997) suggested that the inability of children with ADHD to inhibit behavior in response to cues signaling fear was a core deficit. Oosterlaan (2001) suggested that an overactive BIS was the underlying substrate for temperamental inhibition and might predispose a child to the development of anxiety disorders. Thus, the BIS theory postulates opposing states for anxiety and ADHD (Oosterlaan and Sergeant, 1996).
Barkley's concept of inhibition in ADHD is predominantly a cortical theory, the BIS theory of ADHD is postulated to be due to under-functioning of the septo-hippocampal system, while LeDoux (2002) places greater emphasis on the amygdale. LeDoux has described the behavioral inhibition system as a network that 'detects and responds to aversive stimuli, those that produce pain, punishment, failure, or loss of reward, or that elicit novelty and uncertainty,' resulting in inhibition of ongoing behavior with increased arousal and vigilance.

According to Barkley (1997a), a new theory of ADHD was needed because current research was 'nearly a-theoretical, at least as regards its basic nature,' with the exception of the Quay/Gray model and the work of Sergeant, van der Meere and colleagues (Sergeant, 1988, 1995; Sergeant and Van der Meere, 1988; Van der Meere et al, 1989). Sergeant et al (1999) argued that a poor inhibitory deficit in ADHD was insufficiently specific to conclude that the core of ADHD is an inhibition deficit, because poor inhibitory performance is not specific to ADHD. They argued that energetic factors are critical to the performance deficits of ADHD. According to Barkley (1997a) these researchers successfully employed information processing theory and its associated energetic model (arousal, activation and effort) to isolate central deficits in ADHD, but did not provide a large-scale theory construction, so as to provide a unifying account of the various cognitive deficits associated with ADHD. Barkley also suggested that a deficit in behavioral inhibition in ADHD should be associated with less affective and motivation self-control, but
concluded that emotional self-control could also be associated with frustration due to cognitive deficits such as working memory or comorbid learning disorder.

2.2.2.2. **Comorbidity and ADHD**

Epidemiological studies of ADHD (Graetz et al, 2001) have reported higher scores on the Anxious/Depressed scale of the Achenbach Child Behavior Checklist (CBCL), and on all three Externalizing scales of the CBCL. Some studies suggest that 50–80% of children with ADHD also meet diagnostic criteria for other disruptive behavior disorders, namely Oppositional Defiant Disorder (ODD) (Waldman and Lilienfeld, 1991) and Conduct Disorder (CD) (Thapar et al, 2001) or for Learning Disorders and Communication Disorders (Tannock, 1998). Waldman et al (2001) showed considerable overlap in the genetic and environmental influences on ADHD, CD, and ODD.

The MTA study of ADHD (1999) was confined to children with ADHD Combined Type, and showed that in this group, combined medication treatments offered greater benefits than community care for oppositional/aggressive behaviors, internalizing symptoms, peer interactions, and parent–child relations. The present model suggests a biological basis for these findings, in terms of affective regulation provided by more optimal synaptic gating mechanisms resulting from medication effects.


2.2.3. The cognitive perspective

According to the cognitive perspective, people engage in abnormal behavior because of particular thoughts and behaviors that are often based upon their false assumptions. Treatment is oriented toward helping the maladjusted individual develop new thought processes and new values. Therapy is a process of unlearning maladaptive habits and replacing them with more useful ones.

Cognition literally means “knowing”. In other words, psychologists from this approach study cognition which is ‘the mental act or process by which knowledge is acquired.’ They focus on the way humans process information, looking at how we treat information that comes in to the person (what behaviorists would call stimuli) and how this treatment leads to responses. In other words, they are interested in the variables that mediate between stimulus/input and response/output. Cognitive psychology assumes our behavior is an internal process including perception, attention, language, memory and thought. The cognitive approach applies a nomothetic approach to discover human cognitive processes, but have also adopted idiographic techniques through using case studies.

Typically cognitive psychologists use the laboratory experiment to study behavior. This is because the cognitive approach is a scientific one. For example, participants will take part in memory tests in strictly controlled
conditions. However, the widely used lab experiment can be criticized for lacking ecological validity (a major criticism of cognitive psychology).

**Cognitive psychology:** Gained great importance in the mid-1950s. Several factors were important to this: -

* Dissatisfaction with the behaviorist approach in its simple emphasis on external behavior rather than internal processes

* The development of better experimental methods

* The start of the use of computers allowed psychologists to try to understand the complexities of human cognition by comparing it with something simpler and better understood i.e. an artificial system such as a computer. (Saul Mcleod, 2007).

Recent research suggests that ADHD is on a spectrum with milder attention deficits/hyperactivity problems and that boundaries vis a vis ‘normality’ are blurred. Cognitive functions, including general intellectual levels and executive functions, have been studied in children with ADHD. Landgren et al. (Cabral p, 2006) reported that a group of children with DAMP was characterized by a (generally) low IQ, with the majority having an IQ of below 90. In several studies, significantly lower cognitive levels have been reported in children with ADHD compared to controls. Low factor scores for processing speed and working memory are commonly considered to be of importance among individuals with ADHD.
ADHD is considered to be a heterogeneous disorder overlapping other disorders such as dyslexia, communication and language disorders. (Tirosh E, Cohen A, 1998)

The Analysis Console for intrusion Databases (ACID) profile is based on four subtests of the WISC (Wechsler intelligence scales for children) arithmetic, coding, information, and digit span. This profile is considered to be present when the scores of all these four subtests are equal to or lower than the lowest scores on the other nine subtests. The ACID profile has been shown to distinguish children with certain learning or executive dysfunctions from children without such problems, and has been reported, for example, in children with dyslexia. However, it should be noted that the applicability of the ACID profile in children with ADHD is disputed. Despite the average low IQ and the inability of children with ADHD to concentrate that have been reported; certain children with ADHD are gifted. Lovecky D.V (2004) found that such children had their strengths in verbal areas of the WISC. However, by and large, there have been very few studies providing detailed analyses of the various aspects of the entire cognitive profile in children with ADHD. A previous study reported cognitive test data for a 4th grade cohort of schoolchildren who were reported by parents and teachers to have behavioural and/or learning problem. The children who had cognitive deficits were those who met the criteria for ADHD, sub threshold ADHD and attention / behaviour / learning problems, but not the criteria for ADHD or sub threshold ADHD. The hypotheses were that children with ADHD would display the specific
ACID cognitive profile and children with attention/ behavior / learning problems, not meeting criteria for ADHD, would show a similar profile. (Elisabeth Fernell, Joakim Westerlund, 2007)

2.3. THE SOCIAL CONSTRUCT THEORY OF ADHD

In the ADHD Social Construct Theory the idea is that ADD (Attention Deficit Disorder) and ADHD (Attention Deficit Hyperactivity Disorder) are generally speaking, not biological or psychiatric disorders, but can be better explained by environmental causes or even the personality type of the person. For example an ADD person can be introvert, while the hyperactive person is an extrovert.

A sociocultural model of abnormality emphasizes the social and cultural context, going so far as to suggest that abnormality is a direct function of society’s criteria and definitions for appropriate behavior. In this model, abnormality is social, not medical or psychological. For example, early Greeks revered people who heard voices that no one else heard because they interpreted this phenomenon as evidence of divine prophecy. In the Middle Ages, people tortured or killed people who heard voices because they interpreted this same proclivity as evidence of demonic possession or witchcraft. Today, people treat those who hear voices with medicine and psychotherapy because this symptom is viewed as evidence of schizophrenia. Because behavior is shaped by social factors, sociocultural theories hold, we
must examine a person’s social and cultural surrounding if we are to understand abnormal behavior (Tyrer & Stienberg, 2005).

This theory suggests that the observed behaviors are not abnormal, but normal behavior for a part of the human race. However the extreme overreactions are caused by environmental factors. Among these factors are cramped living conditions with inadequate play space. In the United States' classroom environment together with the increased educational burden being expected from children today, and the stress parents are under, making it more difficult to be in tune with their children, like parents in Africa are able to do. As an example: a young child sitting quiet and still for three quarters of an hour at a time, listening to something they are told to learn, but which they do not find interesting, is an unnatural behavior. This is a new phenomenon in human history. ADHD was not a problem of note until after the industrial revolution. The social changes in western society created environments and situations where this behavior became problematic. Certain children who are boredom intolerant are likely to react against this unnatural environment by either “tuning out” (ADD) or becoming restless and a disturbed (ADHD). Different cultures have different expectations of behavior and are more or less tolerant of active children. In United States' schools, an attitude of intolerance towards children behaving in a manner similar to that described as ADHD has developed. In other cultures that are more tolerant see the same behavior as just an “active child.” Some may even perceive the behavior as healthy. This is especially so where these people do not live in high rise apartments, but in
smaller communities in more natural environments, where the children can run free. Parenting styles vary, even within the Western culture sphere. The parenting styles in Northern Europe are generally more child centered than in the United States. Dutch parents for example are generally more aware of their children's arousal and self-regulation, than the average parent in the United states, and they take care their children get sufficient sleep and are not over stimulated. Schools in different countries have different attitudes, which facilitate accommodation of different children or restrict all children into the same regimen. Canada is ahead of the United States in this regard, having a more flexible attitude. Many European schools have alternative seating styles and even allow for movement in class.

There are studies which show that the rate of ADHD like behavior is fairly consistent in children all over the world. However the rate of children diagnosed varies greatly. In some cultures that behavior is not considered impairing the children. In the United States parents, especially when pressured from schools, are encouraged to look for medical treatment, usually stimulant drugs. Within western society there are definite differences even in the diagnosis. In Europe the ICD-10 (International Statistical Classification of Diseases and Related Health Problems 10th Revision) is used instead of the United States' DSM-IV (Diagnostic and Statistical Manual of Mental Disorders 4th Edition). The ICD-10 has a different level of diagnosis of ADD and ADHD, resulting in 3 to 4 times fewer diagnoses, than in the United States with the DSM-IV. The proponents of the ADHD Social Construct Theory argue that
while biological factors do play a large role in difficulties sitting still or concentrating on schoolwork in some children, the real problem is that the school systems, have failed to integrate these children with the social expectations that the schools have on them.

Some theories will explain some aspects of ADHD, while other theories show other sides of the condition. There is no single explanation. ADHD is complex. Trying to simplify it is not science, but wishful thinking. ADHD is very individual, in both cause, symptoms and treatment. One theory might explain one individual's ADHD, while another theory explains another person's ADD, and a third person may find their explanation in parts from three theories. In this context the ADHD Social Construct Theory should be given more consideration than it is at present. There are no specific cognitive, metabolic or neurological markers and no medical tests for ADHD. Because of the uncertainty about definition, epidemiological studies produce hugely differing prevalence rates: from 0.5% to 26% of children. Despite attempts at standardising criteria, in cross-cultural studies major and significant differences between raters from different countries in the way they rate symptoms of ADHD, as well as major differences in the way children from different cultures are rated for symptoms of ADHD, are apparent. More than 30 neuroimaging studies have been published; however, researchers have yet to compare unmedicated children diagnosed with ADHD with an age-matched control group. Sample sizes in these studies have been small and have produced a variety of inconsistent results. In no study were the brains considered clinically
abnormal, nor is it possible to work out whether any differences seen are caused by (rather than being the causes of) different styles of thinking, or are the result of the medication the children had taken. What we end up with is a modern version of the long-discredited ‘science’ of phrenology. Genetic studies show that ADHD is linked with being male (boys are four to ten times more likely to get this diagnosis in practice) and is associated with the normal genetic variation found with traits such as height. Comorbidity is extremely high, throwing doubt on the specificity of the diagnosis. There are no specific treatments for ADHD, with the most widely debated treatment (Methylphenidate) being known to have similar effects on otherwise normal children. There is no established prognosis, and association and cause frequently are confused in the literature. ADHD has generated huge profits for the pharmaceutical industry against a background of poor-quality research, publication bias and payments to some of the top academics in this field. Thus, the mainstream dogma on ADHD is contaminated and misleading (Timmi, 2002)

To explain the recent rise, to epidemic proportions, of rates of diagnosis of ADHD, a cultural perspective is necessary. The immaturity of children is a biological fact, but the ways in which this immaturity is understood and made meaningful is a fact of culture. In modern Western culture many factors adversely affect the mental health of children and their families. These include loss of extended family support, mother blame (mothers are usually the ones who shoulder responsibility for their children), pressure on schools, a
breakdown in the moral authority of adults, parents being put in a double bind on the question of discipline, family life being busy and ‘hyperactive’, and a market economy value system that emphasizes individuality, competitiveness and independence (Prout & James, 1997). Throw in the profit-dependent pharmaceutical industry and a high-status profession looking for new roles and we have the ideal cultural preconditions for the birth and propagation of the ADHD construct.

A medical model of ADHD is therapeutically quite the opposite; it offers a decent actualized and simplistic idea that leads all parents, teachers and doctors – disengaging from the social responsibility to raise well-behaved children. Thus they become a symptom of the cultural disease they purport to cure. It supports the profit motive of the pharmaceutical industry, which has been accused of helping to create and propagate the notion of ADHD in order to expand its own markets. By acting as agents of social control and stifling diversity in children (Breggin, 2002) Social and cultural context can influence the kinds of stresses people experience, the kinds of disorders they are likely to develop, and the treatment they are likely to receive. Particularly impressive evidence for a social perspective are the results of a well-known study, “On Being Sane in Insane Places” (1973), by American psychologist David Rosenhan. Rosenhan arranged for eight normal people, including himself, to arrive at eight different psychiatric hospitals under assumed names and to complain of hearing voices repeating innocuous words such as “empty,” “meaningless,” and thud.” These pseudopatients responded truthfully to all
other questions except their names. Because of this single symptom, the hospital staff diagnosed all eight as schizophrenic or manic-depressive and hospitalized them.

Although the pseudo patients immediately stopped reporting that they heard voices and asked to be released, the hospitals kept them from seven to fifty two days, with an average of nineteen days. When discharged, seven of the eight were diagnosed with schizophrenia “in remission,” which implies that they were still schizophrenic but simply did not show signs of the illness at the time of release. The hospital staff, noticing that these people took notes, wrote hospital chart entries such as “engages in writing behaviors.” No staff member detected that the pseudo patients were normal people, though many regular patients suspected as much. The context in which these pseudo patients behaved (a psychiatric hospital) controlled the way in which others interpreted their behavior. Particularly impressive evidence for a cultural perspective comes from the fact that different types of disorders appear in different cultures. Anorexia nervosa, which involves self-starvation, and bulimia nervosa, which involves binge eating followed by purging, primarily strike middle- and upper class women in Westernized cultures. In Western cultures, women may feel particular pressure to be thin and have negatively distorted images of their own bodies. Amok, a brief period of brooding followed by a violent outburst that often results in murder, strikes Navajo men and men in Malaysia, Papua New Guinea, the Philippines, Polynesia, and Puerto Rico. In these cultures, this disorder is frequently triggered by a perceived insult.
Pibtokto, a brief period of extreme excitement that is often followed by seizures and coma lasting up to twelve hours, strikes people in Arctic and Subarctic Eskimo communities. The person may tear off his or her clothing, break furniture, shout obscenities, eat faeces, and engage in other acts that are later forgotten. As researchers examine the frequency and types of disorders that occur in different societies, they note some sharp differences not only between societies but also within societies as a function of the age and gender of the individuals being studied. The socio-cultural model of abnormality points out that other models fail to take into account cultural variations in accepted behavior patterns. Understanding cross-cultural perspectives on abnormality helps in better framing questions about human behavior and interpretations of data. Poverty and discrimination can cause psychological problems. Understanding the context of the abnormal behavior is essential. The medical, psychological, and sociocultural models of abnormality represent profoundly different ways of explaining and thus treating people’s problems. They cannot be combined in a simple way because they often contradict one another. For example, a biological model asserts that depression is due to biochemistry. The treatment, therefore, is medicine to correct the imbalance. In contrast, a behavioral model asserts that depression is learned. The treatment, therefore, is changing the rewards and punishers in the environment so that the person unlearns the old, bad habits and learns new, healthy habits. One attempt to integrate the different models of abnormality is called the diathesis-stress model of abnormality. It proposes that people develop disorders if they have a
biological weakness (diathesis) that predisposes them to the disorder when they encounter certain environmental conditions. The diathesis-stress approach is often used to explain the development of some forms of cancer: a biological predisposition coupled with certain environmental conditions. According to this model, some people have a predisposition that makes them vulnerable to a disorder such as schizophrenia. They do not develop schizophrenia, however, unless they experience particularly stressful environmental conditions. It is unlikely that any single model can explain all disorders. It is more probable that each of the modern perspectives explains certain disorders and that any single abnormal behavior has multiple causes (www.learnmax.in/2010).

2.4. THE BIOPSYCHOSOCIAL APPROACHES IN ADHD

A biopsychosocial construction has been proposed likewise for ADHD, whereby a range of factors are considered to interact in any individual to bring about the condition of ADHD. Thus while an individual may have a biological propensity towards ADHD through genetics, only through particular interactions with the environment would such biological propensity be expressed. In this account of ADHD, psychological factors as well as the socio-cultural environment are given greater credence than they were in purely biomedical constructs. The two examples cited above that advocate a biopsychosocial approach to ADHD will be explored; both appeared in a 2001 edition of *Children and Society*. Cooper (2001) acknowledged that genetics and biochemical changes contributed to ADHD, while at the same time recognised the influence of psychological attributes such as stress and coping by the
family, and the socio-cultural environment which enabled labelling such behaviour as ‘ADHD’. In his critical review of the literature, Cooper maintained that a biopsychosocial approach to ADHD was appropriate, given the dominance and established ‘neuropsychological evidence-base for AD/HD’ (2001) This model was based on the recognition that the psychological, social and cultural are inseparable features of the environment and which created propensities for biological expression or inhibition. Cooper called for a ‘holistic approach to ADHD’ (2001) and for greater research into the ‘social reality of this medical Condition. Singh’s (2001) research review, although it took issue with some of Cooper’s points about the established evidence-base for ADHD it argued for a cultural consideration of medication taking as well as a critique of the critical perspectives for ADHD, also concluded with a ‘holistic picture’ (2001: 365) for ADHD which integrated biomedical as well as socio-cultural aspects. In essence then, in such a biopsychosocial approach, while a genetic basis for ADHD is important, the social environment is given greater influence in providing ‘risk’ or ‘protective’ factors for ADHD. The widespread acceptance of the biopsychosocial approach to ADHD, as mentioned above, is indicated by current health policy guidelines for ADHD. National Institute for health and Clinical Excellence (NICE, 2000) and Scottish Intercollegiate Guideline Network (SIGN, 2001) currently advocates that multimodal treatments for ADHD be offered as an intervention. The British Psychological Society’s (BPS) guidelines for the treatment of ADHD (2000) maintain that a multimodal treatment is offered that includes multi-agency
intervention. It has been argued above that a biopsychosocial construction of ADHD, whereby a range of factors are considered to contribute to ADHD, fits appropriately with current multimodal or combined treatment packages for ADHD. If a range of factors are considered to interact in order to contribute towards ADHD expression, then it follows that a range of treatments or packages should be on offer for the individual child and which include: medication, behavioural interventions for child and family as well as educational interventions. It was suggested earlier that unpopularity and controversy over medications may be somewhat alleviated by the change in rhetoric towards medication as simply a part of a much larger treatment package, as a possible but not an inevitable intervention. It is argued further that a biopsychosocial construction of ADHD means that ADHD appears as a more acceptable construct than the previously implied biomedical one. The recognition of the psychological and behavioural aspects as well as the social environment in ADHD makes the biopsychosocial approach much more popular.

2.5. DIAGNOSIS OF ADHD:

In the following part two diagnostic methods will be explained: First method is based on Diagnostic criteria in DSM and second is based on Ayurvedic medicine.
2.5.1. Diagnostic Criteria in DSM

A. Either (1) or (2):

I. Six (or more) of the following symptoms of inattention should have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

a. Often fails to give close attention to details or makes careless mistakes in school work, work, or other activities

b. Often has difficulty sustaining attention in tasks or play activities

c. Often does not seem to listen when spoken to directly

d. Often does not follow through instructions and fails to finish school work, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)

e. Often has difficulty organizing tasks and activities

f. Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as school work or home work)

g. Often loses things necessary for tasks or activities (e.g. toys, school assignments, pencils, books, or tools)

h. Is often easily distracted by extraneous stimuli

i. Is often forgetful in daily activities
Diagnosis Criteria of Hyperactivity

II. Six (or more) of the following symptoms of Hyper activities – Impulsivity have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level.

   a. Often fidgets with hands or feet or squirms in seat
   b. Often leaves seat in classroom or in other situations in which remaining seated is expected
   c. Often runs about or climbs excessively in situations in which it is inappropriate (in adolescent or adults may be limited to subjective feelings of restlessness)
   d. Often has difficulty playing or engaging in leisure activities quietly
   e. Is often “on the go” or often act as if “driven by a motor”.
   f. Often talks excessively impulsively.
   g. Often blurts out answers before questions have been completed
   h. Often has difficulty awaiting turn
   i. Often interrupts or intrudes on others (e.g., butts into conversations or games)

B. Some hyperactive-impulsive or inattentive symptoms that cause impairment are present before age 7 years.

C. Some impairment from the symptoms is present in two or more settings (e.g., at school or work and at home).
D. There must be clear evidence of clinically significant impairment in social, academic or occupational functioning.

E. The symptoms do not occur exclusively during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder and are not better accounted for by another mental disorder (e.g., Mood Disorder, Anxiety Disorder, Dissociative Disorder or a Personality Disorder).

**Specific Type**

• Attention-Deficit/Hyperactivity Disorder, Combined type:
  If both criteria A1 and A2 are met for a period of 6 months

• Attention - Deficit/Hyperactivity Disorder, Predominantly inattentive type:
  If Criterion A1 is met but Criterion A2 is not met for the pasted 6 months.

**2.5.2. Diagnosis in Ayurveda**

Ayurveda believes that all diseases are caused by aggravation of the three doshas i.e. vata, pitta and kapha. The Nidan or the solution of the disease is done in accordance with the doshas.

**2.5.2.1. Diagnosis of Doshas**

Ayurveda identifies a six-level diagnosis process that is called Kriya (action) Kal (time) (Bakhru, 1991)
**Level One:** Accumulation (Sanchaya)

Weak digestive power and excess of dosha is responsible for such a condition.

**Level Two:** Aggravation (Prokapa)

The accumulated, stagnant doshas are now aggravated by factors as ahara, vihara & seasons.

**Level Three:** Spread (Prasara)

In this stage, the toxins accumulated in the GI tract start overflowing. Generally, up to this stage the damage is entirely reversible and restoration of doshic balance can be achieved with proper measures. Or there may be spontaneous prashama (remission) influenced by seasonal changes. Thus there is sanchaya of pitta in rainy season, prakopa in fall and prasara in early winter.

**Level Four:** Augmentation (Sthana Samshraya)

Overflowing toxins migrate, entering and taking asylum in localized, weak or defective dhatu thereby leading to malfunction and structural damage. Offers detailed understanding of the group of symptoms thereby identifying the clear nature of the disease

**Level Five:** Symptom Manifestation (Vyakti)

Differentiated symptoms first begin to appear from the location.

Manifested symptoms being used by modern medicine for classification & diagnosis of disease.
Level Six: Complications/Differentiation (Bhedā)

The prolonged disease, which has taken years to reach this final stage, becomes chronic. Offers detailed understanding of the group of symptoms thereby identifying the clear nature of disease (Andrew, 1995).

2.5.3. Differential Diagnosis:

Age-appropriate behaviors in active children, Mental Retardation; under stimulating environment; oppositional behavior; another mental disorder; Pervasive Developmental Disorder: Psychotic Disorder; Other Substance-Related Disorder not Otherwise Specified. The Diagnostic & Statistical Manuel for Mental disorders (DSM – IV – TR 2000) provides criteria for diagnosing ADHD. The criteria are presented in modified form in order to make them more accessible to the general public they are listed for information purposes and should be used only by trained health care providers to diagnose or treatment of ADHD

The child with primary inattentive subtype of ADHD tends to present with problems later, sometime between the third and sixth grade. Symptoms of primary inattention include difficulty sustaining attention, making careless mistakes, easy distractibility, forgetfulness, not listening when spoken to, losing things, avoiding tasks, not finishing tasks, and poor organization. These symptoms usually lead to a decline in academic performance during third grade or later, when academic work requires the synthesis of materials and
organizational skills needed for long-term projects and papers. The differential includes both psychiatric and nonpsychiatric disorders.

Possible psychiatric conditions include language and learning disabilities, anxiety disorders, affective disorders, adjustment disorders, and psychotic disorders. Medical maladies include epilepsy, neurologic disorders such as neurofibromatosis, thyroid dysfunction, sleep disorders, toxic insults to the central nervous system (CNS), medication adverse effects, and infectious diseases. (Adelaide S. Robb, 2010)

Children with subtle receptive language processing disorders may look inattentive because they cannot understand the classroom instructions. Children with learning disabilities may also start to struggle after third grade because the more complex learning tasks present greater challenges. Several anxiety disorders, including GAD, separation anxiety disorder, PTSD, panic disorder, social phobia, and OCD, may all be characterized by poor classroom performance and difficulty paying attention; some children may even demonstrate mild psychomotor agitation. Inquiring whether the child worries about anything usually elicits a long list of worries and preoccupations that easily differentiates the anxious child from the ADHD child.

Depression, with its accompanying psychomotor retardation, lack of energy, and poor attention and concentration, imitates inattentive ADHD. However, the depressed child is sad and tearful, and experiences changes in appetite, sleep, and energy in addition to the cognitive difficulties. Adjustment disorders that include depressed or anxious mood may also resemble inattentive
ADHD; this child will have experienced a recent stressor in his or her life and a marked and rapid change in academic functioning.

Occasionally, children who present for an evaluation for inattentive ADHD have psychotic disorders including schizophrenia. A careful interview will reveal that the child has odd behaviors and beliefs, delusions, or hallucinations, and seems internally preoccupied. Medical disorders that mimic inattentive ADHD symptoms must be fully evaluated with laboratory testing, physical examination, and physiologic monitoring. Absence and simple partial epilepsy can present with staring spells or missing parts of the school day as a result of the seizures. An electroencephalogram should be performed to rule out epilepsy as a cause of these inattention and staring spells. Children with sleep disorders that interrupt REM and non-REM sleep, including sleep apnea, restless leg syndrome, and other sleep disorders, may present with inattention and poor school performance. In addition, some middle school children suffer a chronic lack of sleep and will be inattentive and "spacy" because of sleep deprivation. A sleep history and a sleep study can rule out sleep disorders as a cause of inattention and school difficulties. Some children with obstructive sleep apnea may show improvements in ADHD symptoms after a tonsillectomy and adenoidectomy. Children with neurofibromatosis may begin to have difficulties in elementary school with problems beginning when the lesions appear in the brain.

Certain heavy metal toxicities, especially lead poisoning, may lead to problems with attention and concentration and can be evaluated with a lead
screen. Treatments for childhood cancers, including central nervous system irradiation and intrathecal chemotherapy, may lead to neurocognitive side effects that imitate the symptoms of ADHD but were not present before age 7. These behaviors are the result of a CNS insult rather than a primary psychiatric illness. Certain medications, including antihistamines, benzodiazepines, selective serotonin reuptake inhibitors, and antiepileptic drugs, may cause inattention and hyperactivity.

School-age children with the combined type or primary hyperactive-impulsive subtype of ADHD present early, sometime between kindergarten and second grade. Presentation is usually prompted by teachers' or parents' observation of the child's difficulties with school performance and/or peer interactions. Characteristics that bring a child to treatment include impulsive, hyperactive, and inattentive symptoms such as excessive motor activity, fidgeting, running, leaving his or her seat, talking, interrupting, and problems waiting with his or her turn.

Although the most likely diagnosis for a 7-year-old boy who runs around, makes noise, loses everything, refuses to do homework, and interrupts his parents is ADHD combined type, a thorough evaluation to exclude other psychiatric and medical diagnoses on the differential is essential. Psychiatric diagnoses that can present with symptoms similar to those of hyperactive/impulsive subtype ADHD include other disruptive behavioral disorders, anxiety disorders, affective disorders, adjustment disorders,
developmental speech and language disorders, reactive attachment disorder, and other developmental disorders.

Disruptive behavioral disorders include oppositional defiant disorder (ODD) and conduct disorder (CD). These disorders frequently are comorbid with ADHD. Children with ODD refuse to follow rules at home and at school, and exhibit argumentative, angry, and acting out behaviors. Children with CD deliberately violate social norms and the rights of others, and present with behaviors including truancy, cruelty to people and animals, stealing, lying, and fire setting.

Some anxiety disorders that present in childhood can look like combined type ADHD. For example, children with posttraumatic stress disorder (PTSD) can experience agitation, easy startle, poor concentration, flashbacks, motor restlessness, and impairments in relationships, and thus can have symptoms similar to those of ADHD. Some children with generalized anxiety disorder (GAD) and panic disorder may also resemble ADHD patients.

Bipolar disorder is the affective disorder that most closely resembles combined type ADHD, with hyperactivity, irritability, distractibility, dangerous and reckless behavior, and poor school performance. Several cardinal symptoms distinguish bipolar disorder from ADHD, including hypersexuality, reduced need for sleep, increased productivity, racing thoughts, and grandiosity.
Mixed expressive and receptive language disorders can present with inattentive and hyperactive behavior because when a child cannot understand or communicate verbally, he or she may become disruptive and agitated. Likewise, children with hearing impairment or severe hearing loss and those who are not native English speakers may also exhibit behaviors that mimic ADHD as a result of the children's inability to understand verbal communication in the classroom.

Children who experience major alterations or stresses in their lives such as divorce, death or illness of a parent, and even bullying may be preoccupied with these stresses and present with signs and symptoms of ADHD. Children who have suffered severe deprivation such as those institutionalized in orphanages or those who have been severely neglected may have reactive attachment disorder and may exhibit some signs and symptoms of ADHD (Joy Inhorn 2011)

2.6. ASSESSMENT OF ADHD

Assessment is simply the collecting of relevant information in an effort to reach a conclusion. It goes on in every realm of life. We make assessments when we decide what cereal to buy or which presidential candidate to vote for. College admissions officers, who have to select the best of students applying to their college, depend on academic records, recommendation, achievement test scores, interviews, and application forms to help them decide. Employers, who have to predict which applicants are most likely to be effective workers, collect
information from resumes, interviews, reference, and perhaps on the job observation. Clinical assessment is used to determine how and why a person is behaving abnormally and how that person may be helped. It also enable clinicians to evaluate people’s progress after they have been in treatment for a while and decided whether the treatment should be changed. The specific tools that are used to do an assessment depend on the clinician’s theoretical orientation. (Comer, J R 2007).

The assessment procedure for ADHD medically includes:

1. Medical Examination: Since physical conditions such as hyperthyroidism (an overactive thyroid) or hypoglycemia (low blood sugar) can mimic ADHD, it is essential that your child get a medical examination. The medical examination should include a careful history and physical examination and may include x-rays and blood work.

2. Observation and Interview with Child and Family: Most professionals observe and interview the family and child. Often, the interview is conducted in the family’s home so that the professional may observe how the family interacts. Prior to the interview, family members often fill out questionnaires. Typically, questions include information about the child’s early development, medical history, school history, family history, etc.
3. Careful Review of Medical, Social and Educational History: Generally, all medical and school records are requested and reviewed by the professional.

4. A Collection of Information on the Child’s Life: Besides collecting information from family members, professionals generally have the child’s teachers and/or other caregivers fill out questionnaires as well. Also, the child is often observed in his or her school setting or other significant settings.

5. Review of Psychological or Educational Testing: The professional will review any prior psychological or educational testing, and perform more tests if needed.

6. Parent Education: Parent education about ADHD is essential. ADHD involves a number of different behaviors and may require more than one treatment plan before a successful method of management is achieved.

2.6.1. Medical Assessment:

This assessment is usually carried out by a Pediatrician. The Pediatrician gathers a full medical and any family history that is necessary. Relevant neurological examinations may be carried out to ensure that there is no nervous function abnormality that may be contributing to the child’s difficulties. Further specialist assessments focusing on specific problems may be recommended in such areas as speech and language, physical therapy, occupational therapy, psychological, psychiatrists, audiology, as well as
ophthalmology. The pediatrician would normally give an expert opinion on which assessments would be necessary.

Like all psychiatric disorders, ADHD is diagnosed based on the presence of particular behavioral symptoms that are judged to cause significant impairment in an individual’s functioning, and not on the results of a specific test. In fact, recently published ADHD evaluation guidelines from the American Academy of Pediatrics (AAP) explicitly state that no particular diagnostic test should be routinely used when evaluating a child for ADHD. While most ADHD experts would agree that no single test could or should be used in isolation to diagnose ADHD, there are several important reasons why the availability of an accurate objective test would be useful.

First, many children do not receive a careful and comprehensive assessment for ADHD but are instead diagnosed with based on evaluation procedures that are far from optimal.

Second, although AAP guidelines indicate that specific diagnostic tests should not be routinely used, many parents are concerned about the lack of objective procedures in their child’s evaluation. In fact, many families do not pursue treatment for ADHD because the absence of objective evaluation procedures leads them to question the diagnosis.( www.helpforadd.com/2006).

For these reasons an accurate and objective diagnostic test for ADHD could be of value in many clinical situations. Two important conditions would have to be met for such a test to be useful.
First, it would have to be highly sensitive to the presence of ADHD, i.e., individuals who truly have ADHD as determined by a comprehensive evaluation should score positive for ADHD on the test. If the test were 100% sensitive, every individual who has ADHD based on current diagnostic criteria would score positive on the test. As the sensitivity of a test drops, the number of “false negatives” — normal test results in individuals who truly have the disorder increase and its utility goes down.

Second, individuals who don’t have ADHD should never score positive on the test, i.e., a positive result should occur only for individuals with ADHD and no one else. When a diagnostic test has high specificity, individuals without the condition rarely score positive on the test. When specificity is low, many individuals without the condition will score positive and may be incorrectly diagnosed as a result. This is referred to as a “false positive”.

Although many psychological tests yield different results, on average, for individuals with and without ADHD, they are not sensitive or specific enough to be particularly useful when making individual diagnostic decisions. For example, a widely used objective test in ADHD evaluations are Continuous Performance Tests (CPTs). These tests provide a computerized measure of a child’s ability to sustain attention and refrain from impulsive responding. Although average performance on CPTs for children with ADHD is below that of peers, and CPT data can be helpful when thoughtfully integrated with other diagnostic information, these tests yields too many false positives and false negatives to be useful as an “objective” diagnostic test for ADHD.
2.6.1.1. Quantitative Electroencephalography (QEEG) For ADHD

Electroencephalography (EEG) is the measurement of electrical patterns at the surface of the scalp which reflect cortical activity, and are commonly referred to as “brainwaves”. Quantitative EEG (QEEG) is the analysis of the digitized EEG, and in lay terms this sometimes is also called “Brain Mapping”. The QEEG is an extension of the analysis of the visual EEG interpretation which may assist and even augment our understanding of the EEG and brain function. QEEG is a procedure that processes the recorded EEG activity from a multi-electrode recording using a computer. This multi-channel EEG data is processed with various algorithms, such as the “Fourier” classically, or in more modern applications “Wavelet” analysis. The digital data is statistically analyzed, sometimes comparing values with “normative” database reference values. The processed EEG is commonly converted into color maps of brain functioning called “Brain maps”.

Several past issues of Attention Research Update have reviewed Quantitative EEG, i.e., QEEG, as a diagnostic aide for ADHD. The use of QEEG is based on findings that individuals with ADHD have a distinctive pattern of brain electrical activity that is often referred to as “cortical slowing”; this is characterized by an elevation of low frequency theta waves and a reduction of higher frequency beta waves in the prefrontal cortex. Theta wave activity is associated with an unfocused and inattentive state while beta activity is associated with more focused attention. Thus, an elevated theta/beta ratio reflects a less alert and more unfocused state.
In a QEEG testing, EEG data is collected from a child or adult in a non-invasive procedure that requires about 30 minutes. The EEG data is digitized and computer scored so that an individual’s theta/beta ratio can be computed; this ratio is then compared to what is typical for individuals of similar age. When this ratio is sufficiently elevated — the cut-off typically used is 1.5 standard deviations above average which corresponds to the highest 7% of the population — the individual is considered to have the EEG marker for ADHD.

In past studies, roughly 90% of individuals diagnosed with ADHD based on a comprehensive evaluation tested positive for this EEG marker. In contrast, about 95% of normal controls tested negative. Thus, while not a perfectly reliable indicator, the sensitivity and specificity of QEEG in identifying ADHD was extremely strong. (www.helpforadd.com/2001/)

The important limitation of this work was that QEEG was tested using individuals known to have ADHD and normal controls without any disorder. Differentiating between ADHD and no disorder, however, is not the situation that clinicians typically face. Instead, a child is referred because of attention and/or behavior problems and the clinician must determine whether these problems reflect ADHD, are better explained by another disorder, or do not rise to the level where any diagnosis is appropriate. Thus, for QEEG to be useful in ADHD evaluations, it must also accurately distinguish between ADHD and other disorders.

One recently published preliminary study indicated promising findings in this regard (David Rabiner, 2008 ). Twenty-six children and adolescents
referred to an outpatient psychiatry clinic for attention and behavior problems received a thorough ADHD assessment conducted by a team of child psychiatrists. They also received a QEEG evaluation. Sixteen of the 26 were determined to meet DSM-IV criteria for ADHD by the psychiatric team while 10 were diagnosed with other conditions. Of the 16 diagnosed with ADHD, 15 showed the QEEG marker for ADHD; in contrast, none of the 10 diagnosed with other conditions showed the QEEG marker. Thus, the QEEG test performed extremely well. (www.helpforadd.com/2007/november.htm)

While these results were encouraging, the sample was small and from a single clinical site. This raises important questions about the generalizability of the findings that need to be addressed in a study that incorporates a larger sample drawn from multiple clinical sites. Recently, a study meeting these criteria was published that is one of the most interesting and important studies in several years (Snyder et al.2008).

2.6.2. Psychological Assessment

A psychological assessment is the attempt of a skilled professional, usually a psychologist, to use the techniques and tools of psychology to learn either general or specific facts about another person, either to inform others of how they function now, or to predict their behavior and functioning in the future.

Psychological assessment is a process of testing that uses a combination of techniques to help arrive at some hypotheses about a person and their
behavior, personality and capabilities. Psychological assessment is also referred to as psychological testing, or performing a psychological battery on a person. Psychological testing is nearly always performed by a licensed psychologist, or a psychology trainee (such as an intern). Psychologists are the only profession that is expertly trained to perform and interpret psychological tests. There are several methods for psychological assessment of ADHD such as:

2.6.2.1. Interviews

Valuable information is gained through interviewing. When it is for a child, interviews are conducted not only for the child, but the parents, teachers and other individuals familiar with the child. Interviews are more open and less structured than formal testing and give those being interviewed an opportunity to convey information in their own words.

2.6.2.2. Behavioral Observations

Observations of the person being referred in their natural setting — especially if it’s a child — can provide additional valuable assessment information. In the case of a child, how do they behave in school settings, at home, and in the neighborhood? Does the teacher treat them differently than other children? How do their friends react to them? The answers to these and similar questions can give a better picture of a child and the settings in which they function. It can also help the professional conducting the assessment better formulate treatment recommendations.
2.6.2.3. **Behavioral assessment system (BASC)**

The Behavior Assessment System for Children (BASC) is a coordinated system of instruments that evaluates the behaviors, thoughts, and emotions of children and adolescents. It focuses on assessing both adaptive and maladaptive behaviors. The BASC consists of 5 components: a self-report scale; a teacher rating scale; a parent rating scale; a structured developmental history; and a form for the recording and classifying of classroom observation. This scale measures adaptive and problem behaviors in school, home and community settings.

The Behavior Assessment System for Children (BASC) is a norm-referenced diagnostic tool designed to assess the behavior and self-perceptions of children and young adults ages 2 to 25 years. The BASC-2 is a multidimensional and multi-method tool since it measures numerous behavioral and personality characteristics through several report based measures. On the Parent and Teacher Rating Scales the tool consists of 16 primary measurement areas, however, not all 16 behavior areas scales are measured on each rating Scale. The sixteen behavior areas included:

- Activities of Daily Living
- Functional Communication
- Adaptability
- Hyperactivity
- Aggression
- Leadership
- Anxiety
- Learning Problems
- Attention Problems
- Social Skills
- A typicality
- Somatization
- Conduct Disorder
- Study Skills
- Depression
- Withdrawal

2.6.2.4. Test of variable of Attention (TOVA)

The Test of Variables of Attention (TOVA) is the most helpful test that has been found for the diagnosis and treatment of ADHD. But this is never used in the diagnostic process without the interviews, rating scales, physical exam, or perhaps some other testing. But it is a good tool in the evaluation process. The TOVA is an extremely boring computer test that requires the kids to respond to a target stimulus by pressing a button, or to not respond when there's a non-target stimulus. The fact that it is so boring is a work of genius because it helps to differentiate between kids who have trouble with "boring," and kids who do all right with "boring." The TOVA is really a valuable tool, but it should never be given just by itself. It needs to be given in the context of the whole diagnostic workup (Blog. Doug 2010).
2.6.2.5. Behavioral Checklists

Attention-Deficit Hyperactivity Disorder as a psychological disorder starts right from the childhood. It is psychological disease which generally changes how a child behaves, thinks, and feel. Nearly all children suffering from this disease are overactive and lacking concentration at times. The infants suffering from this disease are extremely restless, crying, they also show a very poor sleep patterns. The ADHD affected babies are also difficult to feed, show frequent irritability, head banging and often they rock their bed. The ADHD is based solely on behaviour observation since Attention Deficit Disorder does not have clear physical signs that can be seen in an x-ray or a Lab test.

The biggest problem with an ADHD test and Attention Deficit Disorder test is that diagnosis is purely subjective and often depends on the tolerance of the observer. What one person may view as hyperactivity, another might view as well within the acceptable range.

Some parents find it helpful to have several people, including the child, fill out the self ADHD test and Attention Deficit Disorder test. By having more than one person complete the ADHD test and Attention Deficit Disorder test, you can compare the results and discuss discrepancies.

More than 20 checked items on the self Attention Deficit Disorder test indicates a strong tendency toward Attention Deficit Disorder or Attention Deficit Hyperactivity Disorder.
**The Items Include The Following:**

- Does not work to potential in school, receives “not working to potential” teacher comments.
- Has short attention span unless very interested in a particular subject.
- Has a family history of Attention Deficit Disorder, Attention Deficit Hyperactivity Disorder, learning problems or substance abuse.
- Is easily distracted.
- Lacks attention to detail.
- Has sloppy handwriting.
- Has difficulty putting thoughts on paper.
- Has trouble listening carefully to direction.
- Frequently forgets or misplaces things.
- Skips around while reading.
- Has difficulty learning new games and new Skills.
- Has poor listening skills.
- Transposes numbers, letters or words.
- Is restless or in constant motion, is always “on the go.”
- Concentrates better when moving or fidgeting.
- Has trouble sitting still or sitting in one place too long.
- Has increased anxiety or nervousness.
• Has a history of bed wetting beyond the age 5.

• Has poor communication skills.

• Lacks tact, often spurting out the first thing that comes to mind.

• Acts impulsively or dangerously without considering the consequences.

• Is easily bored.

• Says things without thinking and later regrets having said them.

• Starts to answer questions before the questions are fully asked.

• Is impatient.

• Has trouble following verbal directions.

• Makes careless mistakes in schoolwork.

• Has tendency to embarrass others.

• Lies or steals on impulse.

• Has trouble maintaining an organized work or living area.

• Is often late.

• Procrastinates, especially with multi-faceted tasks.

• Is easily overwhelmed by everyday tasks.

• Has trouble getting started.

• Starts projects but does not finish them.

• Fails to finish school work or chores.
• Is inconsistent with school performance.
• Spends excessive time on homework.
• Has a tendency to drift away.
• Has problems with self-esteem.
• Has a negative attitude.
• Has trouble maintaining friendships.
• Acts immature for age.
• Has trouble expressing thoughts and feelings.
• Is verbally or physically abusive.
• Avoids group activities or organized sports.
• Has a quick temper, is “short-fused.”
• Has rage outbursts.
• Gets upset by minor annoyances.
• Is argumentative.
• Worries needlessly or excessively.
• Has tendency towards obsessive behavior.
• Turns words around in conversations.
• Performs poorly under pressure.
• Has difficulty reading unless very interested in the subject.
• Has difficulty falling asleep.

• Has difficulty waking up or feeling fully awake.

• Is frequently tired.

• Startles easily.

• Is sensitive to touch, clothes, noise or light.

• Is more comfortable moving than sitting still.

• Has moods swings from highs to lows.

• Has trouble planning a series of tasks or activities.

• Become upset easily, is “thin-skinned

• Talks excessively

• Fidgets, even sitting quietly.

• Has difficulty waiting in turn during group activities.

• Frequently day dreams or “spaces out.”

• “Blanks out” when taking tests or under pressure.

• Has low frustration tolerance.

• Has frequent behavior problems in school.

People with Attention Deficit Disorder are typically sensitive, intuitive and highly creative because they look at the world differently than the norm. And, people with Attention Deficit Disorder are typically highly intelligent - despite what the standardized measures of intelligence test scores say.
Attention Deficit Disorder is a gift, if managed well. The task is to find ways to manage the negative ADD and ADHD symptoms of Attention Deficit that will allow the positive attributes of ADD and ADHD to shine through.

2.7. INTERVENTION OF ADHD

Attention deficit hyperactivity disorder is one of the neurobehavioral developmental disorder that, there are so many difference viewpoints about of treatment. For example: stimulant treatment, neuro feedback therapy, music therapy, play therapy, psychotherapy, behavior therapy etc. In this part current treatment of ADHD will be explained in four categories:

1) Medical treatment

2) Psychological treatment

3) Instructional treatment

4) Ayurvedic treatment

2.7.1. Medical Treatment

Medical treatment involves different methods such as the use of stimulant medication, drug therapy, neurofeedback etc. Some medications also come in short-acting, long-acting, or extended release varieties. In each of these varieties, the active ingredient is the same, but it is released differently in the body. Usually medications have been used to treat the symptoms of ADHD. Medications for ADHD help many children focus and be more successful at
school, home, and play. Avoiding negative experiences now may actually help prevent addictions and other emotional problems later.

The medications that seem to be the most effective are a class of drugs known as stimulants. Following is a list of the stimulants, their trade (or brand) names and their generic names. “Approved age” means that the drug has been tested and found safe and effective in children of that age.

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Generic Name</th>
<th>Approved Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adderall</td>
<td>Amphetamine</td>
<td>3 and older</td>
</tr>
<tr>
<td>Concerta</td>
<td>Methylphenidate (long acting)</td>
<td>6 and older</td>
</tr>
<tr>
<td>Dexedrine</td>
<td>Dextroamphetamine</td>
<td>3 and older</td>
</tr>
<tr>
<td>Dextrostat</td>
<td>Dextroamphetamine</td>
<td>3 and older</td>
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<tr>
<td>Focalin</td>
<td>Desmethylphenidate</td>
<td>6 and older</td>
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<tr>
<td>Metadate ER</td>
<td>Methylphenidate (extended release)</td>
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<tr>
<td>Metadate CD</td>
<td>Methylphenidate (extended release)</td>
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<tr>
<td>Ritalin</td>
<td>Methylphenidate</td>
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<tr>
<td>Ritalin SR</td>
<td>Methylphenidate (extended release)</td>
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<tr>
<td>Ritalin LA</td>
<td>Methylphenidate (long acting)</td>
<td>6 and older</td>
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The Food and Drug Administration recently approved a medication for ADHD that is not a stimulant. The medication, Strattera, or atomoxetine, works on the neurotransmitter norepinephrine; whereas the stimulants primarily work on dopamine. Both of these neurotransmitters are believed to play a role in ADHD. More studies will need to be done to contrast Strattera with the medications already available but the evidence to date indicates that over 70 percent of children with ADHD given Strattera manifest significant improvement in their symptoms. (National Institute of Mental Health, 2002)

2.7.1.1. The role of Neurofeedback in ADHD treatment

Neurofeedback is probably the most interesting and promising medical treatment modality for ADHD in use today. The goal of the treatment is to teach a person to change the way his brain works, so that the person no longer functions like he has ADHD. This means that with neurofeedback the child could teach his brain not to have ADHD. Biofeedback is the use of instrumentation to mirror psychological and physiological processes of which the individual is not normally aware. These processes are usually considered involuntary. However, through biofeedback they may be brought under voluntary control. The person receives information about the status of his own biological state, and using this information, learns to gain control over involuntary biological functions. Neurofeedback is a type of biofeedback that can be used to train ADHD children to change their brain wave patterns to be more like normal children. Using an electroencephalograph to monitor the brain waves and a system of positive reinforcement, the children learn how to
make their brains become more attentive. The result is that there is a significant reduction in ADHD symptoms and improvements in behavior, relative to how well the children learn to control their own brain function. (Anthony Kane, 2011).

2.7.1.2. **Neurofeedback Process.**

Every normal person has five major types of brain wave patterns. Multiple patterns are present in the brain at any given time, but each area of the brain has a predominant pattern that reflects the person’s current mental state. These patterns can be measured and recorded by an electroencephalogram (EEG). The EEG can be used to make a map of the person’s mental function. The five types of brain wave patterns are:

**Beta waves** (13-36 waves, per second (Hz)). This is the brain rhythm in the normal wakeful state associated with thinking, problem solving and active attention directed towards the outer world. Beta waves may be classified as beta 1 (13-20 Hz) and beta 2 (20-36 Hz). Mental tensions, excitement and anxiety can increase both amplitude and frequency of the beta rhythms. This can cause a shift from beta1 to beta2.

**SMR waves:** These are a subcategory of beta waves. These are the waves that occur in the sensor motor cortex when a person is quietly focused to prepare for a physical challenge.

**Alpha waves** (8-13 Hz). Alpha is the most dominant of all brain rhythms. Most people have some alpha activity in their EEG, especially when they close their
eyes, turn the attention inwards and relax. This increases the amplitude of the alpha waves. Alpha waves, which signify conscious awareness, are the "bridge" or "entrance ticket" to the unconscious, which is represented by even lower frequencies (theta and delta).

**Theta waves (4-8 Hz)**. Theta is the dominant brain rhythm of small children. In adults, theta waves normally appear only during dreaming or drowsiness, as well as during strong emotions. Theta waves are formed deep in the brain and reflect unconscious activity associated with emotions and dreams. Both when one comes close to unconscious memories during deep meditation and close to repressed feelings in therapy the theta activity tends to increase.

In order to have conscious access to and remembrance of the unconscious content, alpha waves must be present in the EEG. Without alpha the unconscious content remains unconscious.

The presence of a certain amount of theta combined with alpha in the EEG recorded during rest may signify personal insight and creativity.

**Delta waves (0, 5-4 Hz)**. Delta is seen in new born babies and in adults during deep sleep. These slow rhythms are associated with basic survival functions deeply seated in the brain. During psychotherapy, where patients relive their own birth, the appearance of delta waves has been observed. Delta waves are associated with the deepest states of consciousness. Some consider that delta signifies contact with the collective unconscious. Delta rhythms combined with alpha can reflect an inner intuitive, empathetic radar, a kind of sixth sense.
EEG studies have shown that children with ADHD have increased theta (slow wave) activity and decreased beta (fast wave) activity compared with normal controls. “Brain can produce a variety of these types of wave forms at any given time. By analyzing brain waves of some people with psychological disorders, there can be obvious flaws. Some have irregular brain wave patterns while others are dominant in certain frequencies or deficient in others. High beta wave/low alpha wave activity has been shown in people with depression, stress, anxiety, epilepsy, and even schizophrenia. Conversely, children with ADHD typically have slower brain waves than most (delta and theta brain wave activity) and decreased power in the alpha bands. For this reason many are prescribed stimulants in order to speed up their brain wave activity. Increased alpha wave activity, while not a cure-all, has shown to help with a variety of mental health issues. Increasing alpha waves can also be a means of just managing stress. Zen Buddhists, biofeedback therapists, and even NASA scientists have all sought ways to increase beneficial alpha wave activity over the years. As psychotherapy research progresses, alpha wave enhancement may become an important tool in fighting mental illness (Becker K, Holtmann. 2006).

2.7.2. Psychological treatment

There are diverse methods for therapy such as behavior – therapy, cognitive behavior therapy, psycho therapy, group-therapy etc. which are described briefly below.
2.7.2.1. Behavior Modification

With behavior modification, parents, teachers and children learn specific techniques and skills from a therapist, or an educator expended in three approaches, that will help improve children’s interactions with other children with ADHD. In addition, the children with ADHD use the skills they learn in their interactions with other children.

Behavior modification is often put in terms of ABCs: Antecedents (things that set off or happen before behaviors), Behaviors (things the child does that parents and teachers want to change), and Consequences (things that happen after behaviors). In behavioral programs, adults learn to change antecedents (for example, how they give commands to children) and consequences (for example, how they react when a child obeys or disobeys a command) in order to change the child’s behavior (that is, child’s response to the command). By consistently changing the ways that they respond to children’s behaviors, adults teach the children new ways of behaving.

Parent, teacher and child interventions should be carried out at the same time to get the best results. The following four points should be incorporated into all three components of behavior in modification:

1. Start with goals that the child can achieve in small steps.
2. Be consistent -- across different times of the day, different settings, and different people.
3. Implement behavioral interventions over the long haul. Not just for a few months.

4. Teaching and learning new skills take time, and children’s improvement will be gradual.

Parents who want to try a behavioral approach with their children should learn what distinguishes behavior modification from other approaches so they can recognize effective behavioral treatment and be confident that what the therapist is offering will improve their child’s functioning. Many psychotherapeutic treatments have not been proven to work for children with ADHD. Traditional individual therapy, in which a child spends time with a therapist or school counselor talking about his or her problems or playing with dolls or toys, is not behavioral modifications. Such “talk” or “play” therapies do not teach skills and have not been shown to work for children with ADHD (Daniel T Moore, 2001)

2.7.2.2. The Behavior modification program

The first step is identifying a mental health professional who can provide behavioral therapy. Finding the right professional may be difficult for some families, especially for those that are economically disadvantaged or socially or geographically isolated. Families should ask their primary care physicians for a referral or contact their insurance company for a list of providers who participate in the insurance plan, though health insurance may not cover the costs of the kind of intensive treatment that is most helpful. Other
sources of referrals include professional associations hospital and University ADHD centers (www.help4adhd.org).

The mental health professional begins with a complete evaluations of the child’s problems in daily life, including home, school (both behavioral and academic), and social settings. Most of this information comes from parents and teachers. The therapist also meets with the child to get a sense of what the child is like. The evaluation should result in a list of target areas for treatment. Target areas -- often called target behaviors-- are behaviors in which change is desired, and if changed will help improve the child’s functioning impairment and long-term outcome.

Target behaviors can be either negative behaviors that need to stop or need to be developed. That mean that the areas targeted for treatment will typically not be the symptoms of AD/HD—over activity, inattention and impulsivity-- but rather the specific problems that those symptoms may cause in daily life. Common classroom target behaviors include “completes assigned work with 80 percent accuracy” and “follows classroom rules” At home, “plays well with siblings (that is no fights)” and “obeys parent requests or commands” are common target behaviors. After target behaviors are identified, similar behavioral interventions are implemented at home and at school. Parents and teachers learn and establish programs in which the environmental antecedents (the As) and consequences (the Cs) are modified to change the child’s target behaviors (the Bs) Treatment response is constantly monitored,
through observation and measurement, and the interventions are modified when they fail to be helpful or are no longer needed.

There are three basic categories or levels of ADHD behavioral training for children:

1. Parent training in effective child behavior management methods.
2. Classroom behavior modification techniques and academic interventions.
3. Special educational placement.

Behavior management is most often used with younger children, but it can be used in adolescents up to 18 years old and even adults. In children and adolescents, the two basic principles are:

- Modeling behavior by encouraging good behavior with healthy praise or rewards. This works best if the reward or praise immediately follows the positive behavior.
- Negatively reinforcing bad behavior by allowing appropriate consequences to occur naturally.

**Behavior Management Strategies for Preschoolers (Age 5 and Younger)**

Provide a consistent routine to the days and structure to the environment. Let them know when the routine is changing or something unusual is going to happen, such as a visit from a relative, a trip to the store or a vacation.
Give the child clear boundaries and expectations. These instructions and guidelines are best given right before the activity or situation.

Devise an appropriate reward system for good behavior or for completing a certain number of positive behaviors, such as a merit point or gold star program with a specific reward, such as a favorite activity. Avoid using food and especially candy for rewards. Engage your child in constructive and mind-building activities, such as reading, games and puzzles by participating in the activities yourself. Some parents find that using a timer for activities is a good way to build and reinforce structure. For example, setting a reasonable time limit for a bath or playtime helps train the child to expect limitations, even on pleasurable activities. Giving a child a time limit for chore completion is also useful, especially if a reward is given for finishing on time.

2.7.2.3. Behavior Management Strategies for Children Ages 6-12

- As much as possible, give clear instructions and explanations for tasks throughout the day. If a task is complex or lengthy, break it down into steps that are more manageable, keeping in mind that as the child learns to manage their behavior, the steps and tasks can become more complex.

- Reward the child appropriately for good behavior and tasks completed. Set up a clear system of rewards (point system, gold stars) so that the child knows what to expect when they complete a task or refine their behavior.
• Bear in mind that as your child gets older they will be more sensitive to how they appear to others and may overreact or be unduly ashamed when they are disciplined in front of others. It is important to have a plan for appropriate discipline for misbehaving that does not require carrying out in front of others. Setting up a specific consequence for a certain behavior is probably the best method of providing consistency and fairness for your child.

• Communicate regularly with your child's teachers so that behavior patterns can be dealt with before they become a major problem and before the teachers get overly frustrated with the situation.

• Always set a good example for your child. Children with ADHD need role models for behavior more than other children, and the adults in their lives are very important.

Behavior therapy is based on several simple and sensible notions about what leads children to behave in socially appropriate ways. One reason is that children generally want to please their parents and feel good about themselves when their parent is proud of them. When the relationship between parent and child is basically positive, this is a very important source of motivation. A second reason that children behave appropriately is to obtain positive consequences for doing so (i.e. privileges or rewards). Finally, children will behave appropriately to avoid the negative consequences that follow inappropriate behavior. The goal of behavior therapy, therefore, is to increase
the frequency of desirable behavior by increasing the child's interest in pleasing parents and by providing positive consequences when the child behaves. Inappropriate behavior is reduced by consistently providing negative consequences when such behavior occurs. This is a simplified, but not unreasonable view, of what behavior therapy is all about.

2.7.2.31. The Positive Reinforcement

The second focus of behavioral treatment involves providing your child with positive consequences for behaving in appropriate ways. The simple logic is that you can increase the frequency of desired behavior (e.g. putting away toys) by providing rewards when such behavior occurs. At the simplest level, this requires nothing more than noticing when your child is doing something you want to encourage (e.g. playing quietly) and making sure to comment on it ("Your doing such a nice job of playing quietly. I really appreciate that."). Think about the kinds of behavior that is to be encouraged, make sure the child understands what he or she has to do, and then be sure to praise the child whenever he is observed doing it. This simple technique of noticing good behavior is easy to overlook and can be quite helpful. Usually parents are recommended to make a conscious effort to catch their child doing something good at least 5 times a day and to point it out. When children are convinced that their parents notice and appreciate their efforts at behaving well, it frequently increases their desire to do so. In addition to these "social rewards", behavioral treatment also involves providing the child with concrete rewards and/or privileges for appropriate behavior. As an example, suppose the child
has developed the problematic habit of talking back, tell him to put away his toys and he tells "not now, later". One way to increase the child's compliance is to make a tangible reward or privilege contingent on his following the request. For example, one could explain that each time he does what he is told he will earn a point. These points can then be used to "purchase" a privilege such as access to TV, computer time, etc. Designing a good behavior plan and implementing it effectively is not easy, and parents may often require professional assistance to do this successfully. Although the specifics of a good plan will vary from child to child and from parent to parent, there are several general principles that are important to keep in mind:

In addition to using positive reinforcement to encourage good behavior, behavioral treatment also relies on negative consequences or punishment to reduce undesirable behavior. Simply stated, when a particular behavior is consistently followed by negative consequences for a child, it should diminish in frequency and intensity. For example, suppose one is trying to reduce a child's tendency to "talk back" and this is being targeted in the behavioral treatment plan. Here is a general approach one might take.

First, the child would need to understand exactly what is mean by "talking back" so that it is clear what should not be done.
Second, it is necessary to teach the child an acceptable way to disagree with people how he or she is allowed to express disagreement and how he can not.

Third, as discussed above, one would review with the child the rewards he will earn for not talking back and for expressing disagreements in an acceptable way.

Finally, it would be useful to discuss with the child what privileges he will lose each time he "talks back". For example, talking back could result in having to take a "time out", losing TV time, having to go to bed early, etc. By setting things up this way, what one is trying to do is to make sure the child understands that there is simply no pay-off for bad behavior. Instead, when he or she acts appropriately, it will always result in good things coming this way. In contrast, when behavioral expectations are not met, the consequences are always negative. Here is a pattern that is easy to fall into and which is associated with increasing misbehavior and non-compliance. Ask or tell the child to do something like pick up the toys. The child ignores and keeps on playing. Repeat the request and the child ignores again. The person gets angry and intensifies the demand; the child gets angry in response and starts a tantrum. After a few more cycles of this are both good and angry. To keep things from exploding, one drops the demand, send the child away, and picks up the toys oneself because "it's not worth all the hassle and aggravation" trying to make the child do it. Most parents have been through something like this, and with children who have ADHD and are also oppositional, this is a
distressingly frequent occurrence. Unfortunately, what a child learns from this type of exchange is that if they just hang in there and persist in being defiant, they will eventually get their way. What happens, therefore, is that the child's disobedience is actually being rewarded. This can really result in things going downhill because the child is being taught that defiance actually pays off. This is why it is important to chose ones battles carefully. Once a demand is made to the child, be sure to follow through with it. If the child persists in being defiant, try using the graded series of consequences as discussed above. The child needs to see that the parent mean business, and that there is absolutely no pay off for being disobedient.

**Children with ADHD generally require more frequent feedback about how they are doing in meeting the parent (or teacher's) expectations.**

Research has consistently demonstrated that children with ADHD perform better when they are given frequent feedback about their performance. Thus, if the behavior treated target is "following directions", it is better to provide the child with feedback about how well he is following directions every hour, rather than doing this once at the end of the day. The actual time interval is something to experiment with; the important point is that a child with ADHD needs frequent feedback for behavioral programs to be effective.

**Children with ADHD do better with short term goals than long term goals.**

This follows from the above. Along with more frequent feedback, children with ADHD generally require shorter intervals between the
opportunity to earn rewards. For example, promising a weekend reward for good behavior during the week may be too far in the future to function as an effective motivator for a child with ADHD. Daily rewards, or even more frequent opportunity to earn privileges, will often be necessary. Providing a child with points or "tokens" for good behavior that can be used to purchase more tangible rewards can be useful because they can be frequently and easily dispensed, and have value because of their connection to desired activities and objects.

**Children with ADHD require more frequent reminders about what is expected of them and what they can earn for meeting those expectations.**

For this approach to be effective, it needs to occupy a prominent place in a child's mind. Children who forget what their behavior goals are and what they are trying to earn by achieving those goals are unlikely to be successful. For a child with ADHD, frequent reminders about the goals and rewards are important. This can be done in the context of providing feedback on how the child is doing.

2.7.2.4. **Significance of psychological treatments**

Behavioral treatment for ADHD is important for several reasons. First children with ADHD face problems in daily life that go well beyond their symptoms of inattentiveness. Hyperactivity and impulsivity including poor academic performance and behavior at school, poor relationship with peers and siblings, failure to obey adult requests, and poor relationships with their
parents. These problems are extremely significance because they predict how children with ADHD will do in the long run.

How a child with ADHD will do in adulthood is best predicted by three things-

(1) whether his or her parents use effective parenting skills.

(2) how he or she gets along with other children, and

(3) it is or her success in school. Psychosocial treatments are effective in treating these important domains. Behavioral treatments teach skills to parents and teachers that help them. They also teach skills to children with ADHD that will help them overcome their impairments.

Behavioral treatments for ADHD should be started as soon as the child receives a diagnosis. There are behavioral interventions that work well for preschoolers, elementary-age students and teenagers with ADHD, and there is consensus that starting early is better than starting later. Parents, schools and practitioners should not put off beginning effective behavioral treatments for children with ADHD.

2.7.2.5. Combining Psychosocial Approaches with Medication

Numerous studies over the last 30 years show that both medication and behavioral treatment are effective in improving ADHD symptoms. Short-term treatments have found that medication alone is more effective when compared to behavioral treatment alone. In some cases, combining the two approaches resulted in slightly better results. The best designed long-term treatment study
the Multimodal Treatment Study of Children with ADHD (MTA)—was conducted by the National Institute of Mental Health. The MTA studied 579 children with ADHD-combined type over a 14-month period. Each child received one of four possible treatments: medication management behavioral treatment, a combination of the two, or the usual community care. The results of this landmark study was that children who received both medication and behavioral treatment experienced the greatest improvements in their ADHD symptoms.

A growing number of physicians believe that Stimulant medication should not be used as the only intervention and should be combined with parent training and classroom behavioral interventions. In the end, each family has to make treatment decisions based on the available resources and what makes the best sense for the particular child. No one treatment plan is appropriate for everyone.

2.7.2.6. Play Therapy

Play therapy refers to a method of psychotherapy with children in which a therapist uses a child’s fantasies and the symbolic meanings of his or her play as a medium for understanding and communication with the child. The aim of play therapy is to decrease those behavioral and emotional difficulties that interfere significantly with a child’s normal functioning. Inherent in this aim is improved communication and understanding between the child and his parents. Less obvious goals include improved verbal expression, ability for self observation, improved impulse control, more adaptive ways of coping with
anxiety and frustration and improved capacity to trust and to relate to others. In this type of treatment, the therapist use an understanding of cognitive development and of the different stages of emotional development as well as the conflicts common to these stages when treating the child. (Angelena M. Krebsbch, 2007).

Play therapy is used to treat problems that are interfering with the child’s normal development. Such difficulties would be extreme in degree and have been occurring for many months without resolution. Reasons for treatment include, but are not limited to temper tantrums, aggressive behavior, non-medical problems with bowel or bladder control, difficulties with sleeping or having nightmares, and experiencing worries or fears. This type of treatment is also used with children who have experienced sexual or physical abuse, neglect, the loss of a family. Children communicate their thoughts and feelings through play more naturally than they do through verbal communications. As the child plays the therapist begins to recognize themes and patterns or ways of using the materials that are important to the child. Over time, the clinician helps the child begin to make meaning out of the play. (Giordano, M. A. (2000)

2.7.2.6.1. Procedure of play therapy

In play therapy, the clinician meets with the child alone for the majority of the sessions and arranges times to meet the parents separately or with the child, depending on the situation. The structure of the sessions is maintained in a consistent manner in order to provide a feeling of safety and stability for the
child and parents. Sessions are scheduled for the same day and time each week and occur for the same duration. The structure of the sessions is typically one or two times per week, and meetings with parents occur about two times per month, with some variation. The session length will vary depending on the environment. For example, in private settings, sessions usually last 45 to 50 minutes while in hospitals and mental health clinics the duration is typically 30 minutes. The number of sessions and duration of treatment varies according to treatment objectives of the child. (Thompson et al., 2004).

During the initial meeting with parents, the therapist will want to learn as much as possible about the nature of the child’s problems. Parents will be asked for information about the child’s developmental, medical, social and school history, whether or not previous evaluations and interventions were attempted and the nature of the results. Background information about parents is also important since it provides the therapist with a larger context from which to understand the child. This process of gathering information may take one to three sessions depending on the style of the therapist. Some clinicians gather the important aspects of the child’s history during the first meeting with parents and will continue to ask relevant questions during subsequent meetings. The clinician also learns important information during the initial sessions with the child. Sessions with parents are important opportunities to keep the therapist informed about the child’s current functioning at home and at school amid for the therapist to offer some insight and guidance to parents. At times, the clinician will provide suggestions about parenting techniques, about
alternative ways to communicate with their child, and will also serve as a resource for information about child development. Details of child sessions are not routinely discussed with parents, if the child’s privacy is maintained; it promotes free expression in the therapist’s office and engenders a sense of trust in the therapist. Therapists will instead communicate to the parents their understanding of the child’s psychological needs or conflicts. For the purposes of explanation, treatment can be described as occurring in a series of initial, middle and final stages. The initial phase includes evaluation of the problem and teaching both child and parents about the process of therapy. The middle phase is the period in which the child has become familiar with the treatment process and comfortable with the therapist. The therapist continues to evaluate and learn about the child, but has a clearer sense of the youngsters issues and has developed, with the child a means for the two to communicate. The final phase includes the process of ending treatment and saying goodbye to the therapist.

During the early sessions, the therapist talks with the child about the reason the youngster was brought in for treatment and explains that the therapist help make children’s problems go away. Youngsters often deny experiencing any problems. It is not necessary for them to acknowledge having any since they may be unable to do so due to normal cognitive and emotional factors or because they are simply not experiencing any problems. The child is informed about the nature of the sessions. Specifically, the child is informed that he or she can say or play or do anything desired while in the office as long
as no one gets hurt, and that what is said and done in the office will be kept private unless the child is in danger of harming himself.

Children communicate their thoughts and feelings through play more naturally than they do through verbal communication. As the child plays the therapist begins to recognize themes and patterns or ways of using the materials that are important to the child. Over time, the clinician helps the child begin to make meaning out of the play. This is important because the play reflects issues which are important to the child and typically relevant to their difficulties.

When the child’s symptoms have subsided for a stable period of time and when functioning is adequate with peers and adults at home, in school and in extra curricular activities, the focus of treatment will shift away from problems and onto the process of saying goodbye. This last stage is known as the termination phase of treatment and it is reflective of the ongoing change and loss that human beings experience throughout their lives. Since this type of therapy relies heavily on the therapist’s relationship with the child and also with parents, ending therapy will signify a change and a loss for all involved, and for the child in particular. In keeping with the therapeutic process of communicating thoughts and feeling, this stage is an opportunity for the child to work through how they feel about ending therapy and about leaving the therapist. In addition to allowing a sense of closure, it also makes it less likely that the youngster will misconstrue the ending of treatment as a rejection by the therapist, which would taint the larger experience of therapy for the child. Parents also need a sense of closure and are usually encouraged to process the
treatment experience with the therapist. The therapist also appreciates the opportunity to say goodbye to the parents and child after having become involved in their lives in an important way, and it is often beneficial for parents and children to hear the clinician’s thoughts and feelings with regards to ending treatment.

2.7.2.62. Techniques in Play therapy

2.7.2.62.1. Color-Your-Life

Color-Your-Life (O’Connor, 1983) provides children with a nonthreatening concrete method of understanding and discussing various affective states. It is critical for children to develop certain skills to successfully manage their affect. Specifically, children need to develop an awareness of numerous affective states, the ability to relate those states to their environmental events, and the skill to verbally express these feelings in an appropriate manner.

Description

Materials needed: A coloring instrument and white paper.

The therapist begins by asking the child to create various color–feeling pairs. For example: Therapist: Can you tell me what feeling might go with the color red?

Child: I don’t know. Therapist: Think of a time when people scrunch up their faces and get very red. Child: Oh, when they get mad! Many people think that the color red matches being angry.
This type of verbal interplay would occur for each color–feeling pair as follows: red–angry, purple–rage, blue–sad, black–very sad, green–jealous, brown–bored, gray–lonesome, yellow–happy, orange–excited. The therapist should make sure that the child describes each feeling in as concrete terms as possible. After the color–feeling pairs are established, the child is provided with a blank paper and told to fill the paper with the colors to show the feelings that they have had throughout their lives. The child may complete the drawing in whatever way she or he chooses, using geometric shapes, designs, and so forth. Once the child clearly understands the task, the therapist limits his or her talking and encourages the child’s discussion of the picture. The focus of the discussion might be on various life events or on the relative quantity of the assorted colors. If the technique is used with a group, the children will often naturally compare drawings, and a lively conversation will ensue.

Applications

Color-Your-Life is suitable for all children between 6 and 12 years of age. The basic requirement is that the children are able to recognize and name colors as well as various affective states. The technique can be used in an individual or a group format. It is helpful to use the technique at several points throughout the therapy in order to examine what change has occurred. The technique can be altered to have the children discuss, in a nonthreatening way, their feelings over the past week or during a particularly stressful time in their lives (e.g., death of a family member, divorce, move, etc.).
2.7.2.6.2.2. The Pick-Up-Sticks Game

**Therapeutic Rationale**

The Pick-Up-Sticks Game (by Barbara McDowell; see Kaduson & Schaefer, 1997, pp. 145–149) was designed to facilitate affective expression in children. The technique is a fun way for children to express their feelings and pair various affective states with environmental events in a game context. In order for the Pick-Up-Sticks game to be successful, the children must already be familiar with color–feeling pairs. One way to introduce them to this is by first playing Color-Your-Life, described above.

**Description**

**Materials needed:** Commercially available Pick-Up-Sticks Game. The therapist begins by reviewing the color–feeling pairs with the child, either verbally or by playing Color-Your-Life. Next, the therapist explains how Pick-Up-Sticks is usually played; Most children are already become familiar with the rules. Either the therapist or the child holds the sticks in their fist and then drops them on the table. The goal of the original version of the game is for the individual to remove a stick without moving any of the other sticks. The players take turns removing the sticks. A turn is ended when the player accidentally moves one of the other sticks. The player who has the most sticks at the end of the game wins. The therapist then adds the new rule for the adapted version. Each time players remove a stick, they must tell about a time when they had the feeling associated with the color of the stick. When it
is the therapist’s turn, rather than disclosing personal information, it is often helpful for responses to be tailored to the specific needs of the child. A small number of passes can also be incorporated in the play so that the child will have some control over the feelings that she or he expresses. This game allows many opportunities for interpretation. The therapist can interpret the color of sticks that the children choose and the colors that they avoid, as well as their overall affect and conduct during the game.

**Applications**

The adapted version of the Pick-Up-Sticks Game is applicable for 6–12-year-old children. This technique can be used in an individual or a small group format. The task requires the child to have adequate verbal skills and concentration as well as awareness of color–feeling pairs. This game may be particularly successful with children who are competitive, because their desire to win will compel them to pick up sticks with a feeling/color they would normally avoid.

**2.7.2.6.2.3. Balloons of Anger**

**Therapeutic Rationale**

It is crucial to help children understand what anger is and how to release it appropriately. Balloons of Anger (Tammy Horn 1997) is an enjoyable, effective technique that provides children with a visual picture of anger and the impact that it can have upon them and their environment. It allows the children
to see how anger can build up inside of them and how, if it is not released slowly and safely, anger can explode and hurt themselves or others.

Description

Materials needed: Balloons. First, the child blows up a balloon, and then the therapist helps tie it. Second, the therapist explains that the balloon represents the body, and that the air inside the balloon represents anger. The therapist asks the child, “Can air get in or out of the balloon?”

“What would happen if this anger (air) was stuck inside of you?” “Would there be room to think clearly?” Third, the therapist tells the child to stomp on the balloon until it explodes and all of the anger (air) comes out. Fourth, the therapist explains that if the balloon were a person, the explosion of the balloon would be like an aggressive act (e.g., hitting a person or object). The therapist asks the child if this seems like a safe way to release anger. Next, the child blows up another balloon, but instead of tying it, the child pinches the end closed. The therapist tells the child to slowly release some of the air and then pinch it closed again. (The child will love the noise that the air makes as it slowly seeps out.)

The therapist asks the child, “Is the balloon smaller?” “Did the balloon explode?” “Did the balloon and the people around the balloon stay safe when the anger was released?” “Does this seem like a safer way to let the anger out?” At the end of the activity, the therapist again explains that the balloon
represented anger. By talking about what makes us angry and by finding ways to release the anger appropriately, the anger comes out slowly and safely.

The therapist reminds the child that if he or she allows anger to build up inside, it can grow and explode and possibly harm the child or someone else. The therapist then discusses various anger management techniques.

Applications

Balloons of Anger is effective for aggressive children who have difficulty controlling their anger and for withdrawn children who internalize their anger instead of expressing it. This technique can be used in an individual or a group format. Bottle Rockets, by Neil Cabe (2001), is a variation of this technique that uses exploding canisters to demonstrate what occurs when anger is not released slowly and safely.

2.7.2.6.2.4. The Mad Game

Therapeutic Rationale

The Mad Game (Patricia Davidson; 1997) was designed to show children that anger is a common, acceptable feeling, and it allows children to verbally and kinesthetically express their anger.

Description

Materials needed: Cardboard, wooden, or plastic blocks.

The therapist divides the blocks evenly between himself or herself and the child, with the instructions that each person will place a block atop the
previous one when it is his or her turn. They alternate turns, each time expressing something that makes him or her angry or something that is not fair. All statements are acceptable, from silly to serious. The therapist begins by bringing up fairly benign issues that the child has and progresses to specific issues of therapeutic concern. For example, “It makes me angry when adults hit children” (abuse). Once all of the blocks are stacked, the child is asked to think of one thing that makes him or her really angry, to make a “mad face,” and to knock down the blocks.

**Applications**

The Mad Game can be used in an individual or a group format. This technique can be slightly altered to express feelings other than anger, such as sadness or anxiety. For example, “I feel sad when . . .” Furthermore, the therapist can write down each angry statement on separate Post-it notes and have the child stick the note to each corresponding block, thus providing the therapist with a record of what was said during the session.

2.7.2.6.2.5. *Beat the Clock*

**Therapeutic Rationale**

Beat the Clock (Heidi Kaduson; 1997,) was designed to increase children’s self-control and impulse control. The goal of this game is for the child to resist distraction, remaining on task and focused for a specified period of time. When the child successfully completes this task, she or he receives
poker chips, which can be cashed in for a prize. When the child is successful at the game, the child is filled with a sense of competence and accomplishment.

**Description**

**Materials needed:** Kitchen timer, poker chips, drawing materials, blocks, and easy reading books. The therapist introduces the activity to the child by saying, “We are going to play the game Beat the Clock. First I will give you 10 poker chips. Here are some blocks. I am going to set the timer for 10 minutes. During that time, you are to build a tower with the blocks and not be distracted by anything around you. If you look up from your activity, you will pay me one chip. Each time you get distracted, ask me a question, or do anything except build the tower you will have to pay me one chip. Do not stop building until you hear the timer go off. If you are able to stay on task for the entire 10 minutes, then I will give you another 10 chips. After you have 50 chips, you can pick anything you want from the Treasure Box [a box of inexpensive toys purchased in advance]. On your mark, get set, go.” The therapist remains quiet for the first few minutes and then creates some distractions. The goal of the activity is to get the child to stay on task no matter what is happening in or out of the room. The child will be very motivated to earn the 50 chips and pick a prize. The therapist should increase the time by 5 min each time a 50-chip prize is attained. Eventually, many children are able to stay on task for the entire session.
Applications

Beat the Clock can be used in an individual or a small group format. This technique is useful for any child who has impulse control problems (e.g., children with ADHD). Swanson and Casarjian (2001) described a comparable version of Beat the Clock in which the child is engaged in school-based activities. Common techniques that have a similar goal include Statue (i.e., the child is to remain motionless) and Make Me Laugh (i.e., the therapist tries to make the child laugh and vice versa).

2.7.2.6.2.6. Relaxation Training: Bubble Breaths

Therapeutic Rationale

Bubble Breaths (2001) is an extremely useful and concrete relaxation technique designed to teach children deep and controlled breathing while helping them become aware of their own mind–body connections. Bubble blowing is fun, inexpensive, and allows nonthreatening interactions between the child and therapist.

Description

Materials needed: Bubbles (either commercial or homemade).

The therapist begins by filling the room with bubbles; most children will immediately begin to pop them as they fall. After a few minutes, the children are asked to blow only one big bubble. The therapist teaches the children to take deep breaths from the stomach and slowly exhale. Next, the therapist explains to the children that when they become angry or anxious, the brain
wants more air, but the lungs are working too hard being upset to provide it. However, if they breathe deeply, their brain will tell their heart to slow and the lungs will work better. The therapist then tells the children that if they take bubble breaths when they start to become angry, nervous, or tense, they can often prevent angry behaviors from happening.

**Applications**

Bubble Breaths can be used in an individual or a group format. It is a simple, inexpensive technique that is extremely engaging and nonthreatening. The technique is especially useful in reducing anger, anxiety, or tension in children.

2.7.2.6.2.7. *Garbage Bag*

**Therapeutic Rationale**

Children often worry about numerous things that they keep bottled up inside. These worries may be the root of some of their presenting problems, such as fears, peer conflict, temper tantrums, and separation anxiety. (Kaduson & Schaefer, 1997) is an effective method for helping children to identify and then discuss their worries with an adult and/or other children.

**Description**

**Materials needed:** A reclosable can, colored paper, markers, glue, and scissors. First, the therapist cuts a strip of paper large enough to completely cover the can. The therapist then asks the child to draw or write “scary things” on one side of the paper strip and to color it with markers. Next, the strip is
glued to the can, and the lid is put on the can. A slot large enough for a slip of paper to fit through is cut in the top of the can. The child is instructed to write down his or her worries on separate pieces of paper and then to place the strips of paper into the can. The child should then share some worries with the therapist or with other children if the activity is conducted in a group.

**Applications**

Worry can may be used in an individual or a group format. It can be adapted to be used as an Anger can or as a Sad Can. A variation of this technique is The Garbage Bag Technique (by Heidi Kaduson; see Kaduson & Schaefer, 2001, pp. 3–7). Two brown sandwich bags may be used as garbage bags—one for garbage from home and one for garbage from school. The child is instructed to decorate the garbage bags and then place three strips of paper, each with a separate problem, in each bag. The following session, the child picks out a piece of garbage to play out in miniatures or in role-playing. Often children will develop their own solutions to their problems. If this does not occur, the therapist should be directive and intervene with suggestions in the context of the play. The therapist needs to keep the play in the third person so as to allow the child to maintain enough distance from the problem in order to solve it.
2.7.2.6.2.8. Party Hats on Monsters

**Therapeutic Rationale**

Party Hats on Monsters (Kaduson & Schaefer, 2001) is a drawing strategy designed to enable children to gradually face their fears in a nonthreatening enjoyable manner. Most children find it more comfortable to express their fears through drawing as opposed to verbalizing them. Furthermore, children find it reassuring when they are not required to face their worst fear or anxiety immediately. By experiencing step-by-step success facing the feared object, the children’s confidence and sense of mastery are increased.

**Description**

**Materials needed**: Paper and drawing instruments (i.e., crayons, markers, paints, chalk, etc.). The therapist begins by instructing the child to draw something that makes him or her feel happy or safe, such as a favorite activity. After the child completes the drawing, the therapist engages the child in a relaxing conversation about what was drawn. Next, the therapist asks the child to draw something that scares him or her just a little. The therapist then tells the child to change the drawing in a way that will make the feared object (e.g., a monster) seem less scary. For example, the child could shrink the monster, put a party hat on him, draw a superhero who turns the monster from mean to nice, and so on. Either while the child is modifying the drawing or after, the therapist remarks, “It is amazing how many children realize that when they change the picture on paper to make it less scary, they also change the
picture in their head so that they are no longer frightened.” The therapist continues over time creating a hierarchy of the child’s fear.

**Applications**

This technique is appropriate for preschool and school-age children. Although it is beneficial for helping children face their common fears, it is especially effective for children who have anxiety disorders. This technique can be slightly altered by providing children with the option of sculpting their fears in clay. A similar technique designed specifically to help children master their nightmares is Draw Your Bad Dream, developed by Nancy Boyd Webb (Kaduson & Schaefer, 2001, pp. 159–162). Often children reduce their fears simply by the act of drawing the nightmare because it gives them a sense of control and mastery over it. First, the children draw the scary part of the dream. The therapist then validates the children’s fear and asks them how they would like to destroy the scary part of the dream. For example, they may decide to rip the paper into shreds, lock it in a filing cabinet so that it cannot get out, or scribble all over it in black so that it can no longer be seen. The children can also be asked to draw a happy, peaceful, “replacement” dream to bring home and hang near their beds.

2.7.2.6.2.9. **Weights and Balloons**

**Therapeutic Rationale**

A common challenge in therapy is making abstract therapeutic constructs understandable, meaningful, and concrete to children. Techniques
that are enjoyable and “hands-on” are an ideal way to teach children these complex concepts. Weights and Balloons (Kaduson & Schaefer, 2001) is an easy, effective technique for teaching children the somewhat complicated cognitive–behavioral theory of depression.

Description

Materials needed: A dozen helium balloons, paper and pen, and some type of weight (e.g., rocks, blocks, etc.). The therapist and the child create a list of negative and positive thoughts that the child has about a specific situation or in general. The lists are kept separate by either putting them on separate sheets of paper or placing them in different columns. After the completion of the lists, the therapist explains how negative thoughts feed the feelings of depression and weigh us down. However, positive thoughts lift our spirits and help us to feel good. The therapist then explains how our thoughts directly influence our feelings and how we can change the way that we feel by altering our thoughts. The therapist then demonstrates how it feels to hold each of the objects — a weight for each negative thought and a balloon for each positive thought. The child then holds each of the objects to get a sense of the physical sensation. For an older child, the weights can be incremental to represent more damaging thoughts. The therapist has the child hold all of the weights and walk around the room with them. This helps the child see how holding onto one’s negative thoughts weighs one down. When the child is told to put the negative thoughts (weights) down, the child can see how it feels not to carry around all that
weight anymore. Next, the therapist discusses the “weightlessness “of the positive thoughts and teaches the child how positive thoughts are helpful.

Applications

Weights and Balloons is an inexpensive technique that transforms a complex idea into something concrete and understandable. This technique is particularly useful for children who are depressed; however, it is useful with all children to illustrate the effect that thoughts have on feelings.

2.7.2.6.2.10. Symbol of Strength

Therapeutic Rationale

Children who are referred for therapy often have low self-esteem, ineffective problem-solving skills, and difficult relationships with peers and adults. Therefore, primary therapeutic goals often include improving the child’s positive sense of self and increasing his or her coping skills. However, it is often difficult for children to articulate what strengths they wished they had or what attributes would help them cope more effectively. The Power Animal Technique (Kaduson & Schaefer, 2001) provides children with an imaginative and enjoyable method of internalizing those strengths and attributes that they desire.

Description

Materials needed: Pictures of a large variety of animals, clay, and drawing materials. The therapist shows the child pictures of a large variety of animals and asks the child to choose one that appeals to him or her. The
therapist then asks the child to construct the chosen animal in clay or to make a mask with the animal face on it. The therapist follows the child’s lead. Eventually, the therapist will ask the child to imagine what the animal might do in certain situations and how it might solve a specific problem. By regularly consulting with the animal, the therapist will help the child move deeper into an internalization of the strengths and attributes the child projects onto the animal.

**Applications**

The Power Animal Technique is useful with any child who might profit from a positive introvert. A similar technique is Shazam, by Donna Cangelosi (Kaduson & Schaefer, 2001). The child is provided with a variety of art supplies and asked to create a “messenger” (i.e., an animal, an alien, a therapist, a cartoon character, etc.) small enough to fit on his or her shoulder, which will help the child solve problems. The child is told that this messenger is invisible to everyone but him or her and the therapist. The messenger remains with the child at all times to remind the child about available options for handling various problems. Eventually, the child internalizes the messenger. A second comparable technique is Super Me, by Emily Nickerson (Kaduson & Schaefer, 2001). The child describes those qualities that she or he would give to a superhero. The child then creates this superhero artistically, and the therapist tells a story of the child and the superhero solving a problem together. Again, the goal is for the child to internalize the strengths of the superhero. Nickerson uses this technique as a way to facilitate the termination process.
2.7.2.6.2.11. The Spy and the Sneak

**Therapeutic Rationale**

The Spy and the Sneak (Bria Bartlett-Simpson 1997) was designed to transform negative family interactions into positive ones, which would increase the family members’ enjoyment of each other and improve their self-esteem. Parents begin to see many of their children’s positive qualities and start to reward the good behavior. Children realize that they get more attention by acting in a positive manner than in a negative one.

**Description**

**Materials needed:** None.

The therapist meets first with the child and discusses sneaky positive behaviors that the child can do to surprise his or her parent. The child is told that he or she is a “sneak” and the parent is a “spy” who is going to try to discover what the sneak did. Together the therapist and child brainstorm three to five good behaviors, related to the treatment goals, for the child to accomplish the next week. The therapist then invites the parent into session and informs the parent of the plan and explains the role of the spy. The parent is to write down all of the good behavior that the child engages in for the week. The parent and child are instructed not to discuss the findings with each other. The next session, the therapist meets with the parent and child again and discusses what happened. The therapist should facilitate a discussion of how the child and parent feel when the child engages in these positive behaviors. The game
should last for several sessions. Often, the parent will notice more positive behavior than the child planned. The child enjoys the positive attention that he or she receives as well as surprising his or her parent.

**Applications**

The Spy and the Sneak is a fun, engaging technique that involves no cost but results in huge therapeutic gains. This technique is excellent to use with any family that is experiencing negative interactions. After the family has engaged in the technique for a few weeks, the therapist may choose to instruct the parent and child to switch roles, with the child becoming the spy and the parent becoming the sneak.

The techniques described represent only a fraction of the creative play therapy strategies that are currently being employed by child therapists across the country. The greater the number of play techniques that therapists have in their therapeutic toolbox, the better the likelihood that they will select the right tool for healing an individual child. In recent years, the development of innovative play therapy techniques has matched the significant gains made in play therapy theory and research. (Tara M Inhal, 2002)

2.7.2.7. **Some Ethical Principles of Play Therapy**

2.7.2.7.1. **Responsibility**

These Principles are inspirational in nature, but are considered good ethical practice for a Play Therapist. Play Therapists need to be motivated, concerned and directed towards good ethical practice. They are required to take
responsibility to maintain these standards and Play Therapists should always accept responsibility for their professional behavior and actions. Play Therapists are concerned about the ethical compliance of their own practice and their colleagues’ professional conduct. When ethical conflicts occur, Play Therapists attempt to resolve these conflicts in a responsible manner. Play Therapists are also aware of their professional responsibilities towards their clients, society and to the communities in which they work.

2.7.2.7.2. Beneficence

Play Therapists strive to benefit those with whom they work, acting in their best interests and always working within their limits of competence, training, experience and supervision. This principle involves an obligation to use regular and on-going supervision to enhance the quality of service provision and to commit to enhancing practice by continuing professional development. An obligation of the Play Therapist is to act in the best interests of clients and this is the paramount consideration for Play Therapists since clients are generally non-autonomous and dependent on significant others. Ensuring that the client’s best interests are met requires monitoring of practice and outcomes and accordingly British Association for Playtherapists (BAPT) has set down standards for supervision which all members of BAPT should follow.
2.7.2.7.3. Non-Maleficence

Play Therapists are committed to not harming those with whom they work. Because Play Therapists' professional judgments and actions may affect the lives of others, they are aware, concerned and committed to guard against personal, financial, social, organizational, emotional, sexual or political factors that may lead to a misuse of their influence or exploitation of those with whom they work. This may involve not providing services when unfit to do so due to personal impairment, including illness, personal circumstances or intoxication. Play Therapists have a responsibility to challenge the incompetence or malpractice of others and to contribute in investigations or adjudications concerning the professional practice and/or actions of others.

2.7.2.7.4. Fidelity

Play Therapists establish relationships of trust with those with whom they work. Play Therapists honor and act in accordance with the trust placed in them. This principle obliges Play Therapists to maintain confidentiality and restrict disclosures of confidential information to a standard appropriate to their workplace and legal requirements.

2.7.2.7.5. Justice

Play Therapists recognize that fairness and justice is an entitlement for all persons. This obliges Play Therapists to ensure that all persons have fair and equal access to and benefit from the contributions of Play Therapy and to equal quality in the services being conducted and offered by Play Therapists. Play
Therapists exercise judgment and care to ensure that their potential biases, levels of competence and limitations of their training and experience do not directly or indirectly lead to unjust practices.

2.7.2.7.6. Respect For People’s Rights And Dignity

Play Therapists respect the dignity and worth of all people and the rights to privacy, confidentiality and autonomy. Play Therapists who respect the autonomy of those with whom they work ensure accuracy of advertising and delineation of service information. Play Therapists seek freely the informed consent of those legally responsible for clients and, where possible, assent from clients, engage in clear and explicit contracts, including confidentiality requirements and inform those involved of any foreseeable conflicts of interest. Play Therapists are aware that special safeguards may be necessary to protect the rights and welfare of clients who are non-autonomous and dependent on significant others.

2.7.2.7.7. Respect For People’s Needs And Relationships

Play Therapists respect the needs of individuals, including emotional, psychological, social, financial, educational, health and familial needs. Play Therapists who respect people’s needs and relationships are aware that clients may be dependent upon significant others and that autonomous decision making may not be possible. Play Therapists respect the client’s relationships and ensure that, where possible, those in significant relationships to the client are included in the decision making processes. (Ann Marie.Lundberg.2004).
2.8. AYURVEDIC TREATMENT

Ayurveda believes that the human being is an assemblage of four parts: The corpse, the psyche or atma the soul and the buddhi or intellect, and that the human body works like a system with all the parts dependent on each other. Ayurveda also describes three types of personalities:

1) **Vata type**: In Ayurveda, One of the three organizing principles (Doshas) responsible for maintaining homeostasis. Formed by a combination of air and water, vata is involved in dynamic bodily function such as blood circulation, peristalsis and elimination of food.

2) **Pitta type**: Pitta responsible for maintaining homeostasis. Formed by a combination of fire and water, pitta is involved in metabolic activity, digestion and biochemical reaction.

3) **Kapha type**: Kapha responsible for maintaining homeostasis. Formed by a combination of earth and water, Kapha is involved in body stability, and cohesion.

According to Ayurveda among these three energies (Vata, Pitta and Kapha,) Vata is the energy of action. It controls all the movements and nervous impulses in the body. Naturally when Vata is aggravated or increased, it results in more activity. Chronic aggravation of Vata energies in a Vata child will create the, ADHD syndrome thus treatment of ADHD in ayurveda is based of control or rebalance in vata by the following methods:
2.8.1. Role of food or diet:

According to Vedic mythology the food plays the very significant role. There are several important things to balance vata. One of them is diet. Dr. Jay Apte suggests the following diet:

1) Replace sugar filled, processed foods with whole grains: bread, quinoa, rice, amaranth, whole wheat pasta etc.

2) Root, squashes, pumpkins, zucchini, and okra, are more grounding vegetables than raw leafy vegetables.

3) Replace cold fruit juices with fresh fruits.

4) Unsalted nuts rather than candies.

5) Warm foods make feel grounded more than cold refrigerated foods.

6) A piece of pie will be a better choice than a scoop of cold ice cream.

2.8.2. Yoga:

Yoga is simply management of mental activities. Mind is the collection of thoughts. In this case; yoga works as a check on the activities of mind. Checking the vague wanderings of the mind and directing it to useful tasks. Control over the mind means training it to act according to our wishes. A common treatment for ADHD includes stimulant drugs like Ritalin or amphetamines. Stimulant drugs work by increasing blood flow and boosting levels of dopamine, serotonin and norepinephrine in the brain. However, up to one-third of children are not responsive to this treatment and the side effects
are significant and include weight loss, insomnia and nervous tics. Not only that, psychiatric problems, sudden cardiac death and possible interference with normal brain development have been linked to long-term Ritalin use.

In children who cannot tolerate medications or when medication is ineffective, behavioral therapy has been suggested as a treatment alternative. Although behavioral therapy has shown some benefit in adult ADHD, most research has shown little or no effect in children. Clearly, alternative treatments for ADHD are needed that are effective yet safe. **Yoga** is a great alternative to medication. Yoga incorporates deep breathing exercises that enhance relaxation and improve self-control. These benefits spill over into the daily lives of children with ADHD and help them to improve self-esteem, do better in school and get along with others. Yoga also emphasizes maintenance of poses and relaxation.

During yoga classes, teachers offer detailed and frequent instructions about muscle and joint awareness. Overall, yoga students ultimately develop greater attention and ability to concentrate; qualities that are deficient in children with ADHD. Yoga also reduces depression, anxiety, anger and neurotic symptoms. This results in overall improvements in **mental health** and better behavior in social settings. The beneficial effects of yoga are largely the result of the deep breathing patterns practiced. The rate and depth of breathing have distinct effects on heart rate and the autonomic nervous system. By practicing yoga on a regular basis, children with ADHD learn to control their responses in stressful social settings. Numerous research studies support the use of regular yoga for kids with ADHD (Rojas 2005, Weber 2007). One study showed that yoga
improves attention and behavior in school-age boys that were already stabilized on medication, compared to boys on medication only (Jensen 2004). Furthermore, the boys who practiced yoga more frequently had even better outcomes. Another study randomly selected children with ADHD to practice either yoga or traditional exercise (Haffner 2006). The children who performed yoga improved attention and had fewer ADHD symptoms versus the exercise group. Overall, yoga can have similar effectiveness to medication and better effectiveness than behavioral therapy for the treatment of children with ADHD. Furthermore, there are no side effects whatsoever except for improved behavior, better school performance and higher self-esteem. Coupled with the calming effects of yoga, it goes without saying that children should be offered a healthy diet abundant in fruits and vegetables offering beneficial plant based nutrients called phytonutrients. Sugary and junk foods should be kept to a minimum. On occasion, supplementation with vitamins may be in order. However the use of synthetic vitamins is contraindicated and natural alternatives such as additive free aloe vera juice should be explored. All in all, yoga, proper foods with supplementation, monitoring by the family physician with plenty of hugs and positive reinforcement, should help to greatly improve the outcome of a child experiencing the symptoms of ADHD (Linda Kennedy 2010)

2.8.3. Herbs

Herbalism is a traditional medical practice based on the use of plants and plant extracts. Herbalism is also known as botanical medicine, medicinal
botany, medical herbalism, herbal medicine, herbology, and phytotherapy. Sometimes the scope of herbal medicine is extended to include fungi and bee products, as well as minerals, shells and certain animal parts. Many plants synthesize substances that are useful to the maintenance of health in humans and other animals. These include aromatic substances, most of which are phenols or their oxygen-substituted derivatives such as tannins. Many are secondary metabolites, of which at least 12,000 have been isolated — a number estimated to be less than 10% of the total. In many cases, these substances (particularly the alkaloids) serve as plant defense mechanisms against predation by microorganisms, insects, and herbivores. Many of the herbs and spices used by humans to season food yield useful medicinal compounds. The use of herbs to treat disease is almost universal among non-industrialized societies. A number of traditions came to dominate the practice of herbal medicine at the end of the twentieth century:

* The herbal medicine system, based on Greek and Roman sources
* The Ayurvedic medicine system from India
* Chinese herbal medicine (Chinese herbology)
* Unani-Tibb medicine
* Shamanic Herbalism

The use of herbal medicine in the treatment of ADHD is of high interest to the many families and professionals looking for alternatives to drug therapy.
2.8.4. Massage

Ayurvedic massage, known as abhyangha is usually performed by one or two therapists using a heated blend of herbal oils based on the ayurvedic system of humors. Ayurvedic massage combines the ancient Indian medical practices outlined in Ayurveda with the family practice of giving and receiving massages on a regular basis. Ayurvedic massage uses a liberal amount of oils (so as to not aggravate vata by irritating dry skin), a vigorous touch, and special attention to special pressure points, referred to as "marmas" which are intended to stimulate certain organ systems. A great deal of emphasis is placed on stimulating the digestive system in Ayurveda, and the same can be said about Ayurvedic massage. Many of the pressure points and massage techniques are employed with the intention of stimulating proper digestion and elimination. Ayurvedic massage is tailored to the individuals body's specific needs. There are four main kinds of massage offered by Ayurvedic massage therapists, each with a specific purpose. This can be eliminated Massage is performed with the intention to eliminate toxins through purification, strengthen the muscle tone, relax the body or rejuvenate the body.

2.8.5. Lifestyle:

Lifestyle is typical way a person goes about daily living. A way of living of individuals, families (households), and societies, which they manifest in coping with their physical, psychological, social, and economic environments on a day-to-day basis. Lifestyle is expressed in both work and
leisure behavior patterns and (on an individual basis) in activities, attitudes, interests, opinions, values, and allocation of income.

2.9. INSTRUCTIONAL TREATMENT

Parent training programs have been used for many years and have been found to be very effective. Although many of the ideas and techniques taught in behavioral parent training are common sense parenting techniques, most parents need careful teaching and support to learn parenting skills and use them consistently. It is very difficult for parents to buy a book, learn behavior modification, and implement an effective program on their own. Help from a professional is often necessary. The topics covered in a typical series of parent training sessions include the following:

- Establishing house rules and structure
- Learning to praise appropriate behaviors (praising good behavior at least five times as often as bad behavior is criticized) and ignoring mild inappropriate behaviors.
- Using appropriate commands
- Using “when-then?” contingencies (withdrawing rewards or privileges in response to inappropriate behavior)
- Planning ahead and working with children in public places.
- Time out from positive reinforcement (using time outs as a consequence inappropriate behavior)
• Daily charts and point/token systems with rewards and consequences
• School-home note system for rewarding behavior at school and tracking homework.

Some families can learn these skills quickly in the course of 8-10 meetings while other families—often those with the most severely affected children require more time and energy.

Parenting sessions usually involve an instructional book or videotape on how to use behavioral management procedures with children. The first session is often devoted to an overview of the diagnosis, causes, nature, and prognosis of ADHD. Next, parents learn a variety of techniques, which they may already be using at home but not as consistently or correctly as needed. Parents then go home and implement what they have learned in sessions during the week, and return to the parenting session the following week to discuss progress, solve problems, and learn a new technique.

Parent training can be conducted in groups or with individual families. Individual sessions often are implemented when a group is not available or when the family would benefit from a tailored approach that includes the child in sessions. This kind of treatment is called behavioral family therapy. The number of family therapy sessions varies depending on the severity of the problems. Association of children and adults with attention deficit/hyperactivity disorder (CHADD) offers a unique educational program to help parents and individuals navigate the challenges of ADHD across the lifespan.
When the child involved is a teenager, parent training is slightly different. Parents are taught behavioral techniques that are modified to be age-appropriate for adolescents. For example, time out is a consequence that is not effective with teenagers; instead, loss of privileges (such as having the car keys taken away) or assignment of work chores would be more appropriate. After parents have learned these techniques, the parents and teenagers typically meet with the therapist together to learn how to come up with solutions to problems on which they all agree. Parents negotiate for improvements in the teenagers target behaviors (such as better grades in school) in exchange for rewards that they can control (such as allowing the teenager to go out with friends). The give and take between parents and teenager in these sessions is necessary to motivate the teenager to work with the parents in making changes in his or her behavior. Applying these skills with children and teens with ADHD takes a lot of hard work on the part of parents. However, the hard work pays off. Parents who master and consistently apply these skills will be rewarded with a child who behaves better and has a better relationship with parents and siblings.

2.9.1. Parents Training for ADHD Child

Parent skills training has been used for years to improve the behavior of children, and multiple clinical trials have validated its effectiveness. Those same programs improve the behavior of kids with ADHD. Although it may seem odd to be changing parents' behavior to treat what's considered a medical condition in children, research has found that for children with ADHD, having parents who use effective parenting techniques is one of the best predictors of
success in adulthood. These programs teach parents to make clear, specific requests of children, for instance, and to use praise and rewards for good behavior far more often than punishment. In fact, parent training for ADHD is considered so mainstream that last fall the British government mandated parent training as the first choice for treatment in many cases. "For milder cases, we recommend starting with behavioral therapy," says Eric Taylor, a professor of psychiatry at King's College Hospital and an ADHD authority who helped write the new standards for the National Institute for Health and Clinical Excellence. In England, parents of children with ADHD are offered free government-funded classes where they learn to set clear limits for the child, be consistent in enforcing those limits, and reward good behavior. In a perfect world, all children with ADHD would get coordinated, "multimodal" treatment, which would include parent training; a tailored program at school; education about ADHD for kids, parents, and teachers; and medication if necessary. But all too often, kids get just the pills. Most children are treated by pediatricians, who may not be aware of the data on the benefits of behavioral treatments such as parent training, despite the fact that the American Academy of Pediatrics recommends both behavioral interventions and medication. The various professional societies favor their own strengths, not surprisingly, with the psychologists endorsing behavioral therapy and the psychiatrists on medication as the first line of treatment. "The behavioral treatment had no side effects," says William Pelham, a research psychologist who directs the Center for Children and Families at the University at Buffalo-SUNY (State University of
New York) and who was a pioneer in the use of parent training as a behavioral intervention for ADHD. Side effects of medication include insomnia, loss of appetite, and stunted growth. That, he says, is reason enough to follow the British model.

There are several methods for parents training in ADHD such as Behavioral parents training (BP) or Parents Management Training (PMT). Some of them are explained briefly below:

### 2.9.1.1 Behavioral Parent Training

Behavioral parent training (PBT), either alone or in combination with other intervention strategies (e.g., stimulant medication), is often employed in the clinical management of children with attention-deficit hyperactivity disorder (ADHD). In this form of treatment, parents routinely receive on-going clinical supervision in the use of specialized child management tactics, primarily involving contingency management techniques. In some applications of PT, counseling parents about ADHD is included as well (Barkley, 1990). When such training is successful, parents are better equipped to manage their child's behavior, especially at times when the effects of medication or other treatments are diminishing or absent. These changes in parenting style presumably provide children with opportunities for acquiring greater self-control over their own behavior.
2.9.1. 2. Parent Management Training

Parent Management Training (PMT) is a program that trains parents to manage their children's behavioral problems at home and at school. PMT works to correct maladaptive parent-child interactions especially as they apply to discipline. PMT utilizes social learning techniques based upon behavior analysis and operant conditioning to alter both the parents' and the child’s behavior to decrease the child’s oppositional or antisocial behavioral patterns. PMT has been used as an adjunct therapy in Autism Spectrum Disorder, Conduct Disorder, Down syndrome, Attention-Deficit Hyperactivity Disorder, and Oppositional Defiant Disorder (ODD).

The Oregon Social Learning Group developed and conducted most of the early research on parent management training in the late 1960s. Offshoots of the model were similarly developed by Conne Hamf and such models led to the development of a hybrid model known as Parent–child interaction therapy. PMT was first developed in the 1960s by Alan E. Kazdin, PhD., director of the Yale Parenting Center and Child Conduct Clinic at Yale University. The model follows a Behavior analysis of child development in which moment to moment reinforcement chooses conflict tactics in fights over time as well a what is commonly termed personality. Treatment sessions include instruction in social learning principles and techniques. The therapist instruct the parents on how to define, observe, and record their children's behavior such as fighting and having temper tantrums and then how to apply appropriate methods of positive reinforcement and punishment.
Positive reinforcement, the key element of PMT, is given to the child via various techniques such as giving the child increased attention and praise and awarding points for positive behavior. Punishment for negative behavior is meted out via methods such as giving time outs, verbal reprimands and loss of privileges such as watching television or playing video games.

Contingencies are indirectly affected as well by training parents to communicate better about contingencies and solve problem troubled situations.

2.9.2. Teacher training

Most teachers deal with at least one child with ADHD everyday. Some teachers are quite skilled at adapting their classroom structure and teaching techniques for children with ADHD. Other teachers know what needs to be done, but because of the many other demands they face every day, they have difficulty dealing effectively with such a child.

Teacher training provides educators with skills to help children with ADHD succeed in the classroom, such as:

- How to modify a child’s workload to match their attentional abilities;
- How to alter teaching style and curriculum to make it more interesting and engaging; and
- How to create and enforce classroom rules that are helpful, both for the child with ADHD and his or her peers.
During the training period, a mental health professional also works with a teacher to develop specific programs useful for a specific child. The professional then provides support and consultation as the programs are initially implemented. Usually, programs are developed that link home and school in some way, such as having parents provide children a reward at home for appropriate behavior at school. As is the case with parent training, the techniques used to manage ADHD in the classroom have been used for some time and are considered effective. Many teachers who have had training in classroom management are quite expert in developing and implementing program for students with ADHD. However, because the majority of children with ADHD are not enrolled in special education services, their teacher will most often be regular education teachers who may know little about ADHD or behavior modification and need assistance in learning and implementing the necessary programs. There are many widely available handbooks, texts and training programs that teach classroom behavior management skills to teachers.