CHAPTER I
INTRODUCTION

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Childhood is the most important stage in the lifetime of human beings. If the behavioral traits and problems of children are not perceived in time and their treatment is delayed it affects the development of personality of the child and impairs the growth of the child. With the passage of time it soon reaches unavoidable proportions and the treatment becomes complicated.

A commonly noticed problem among children in the recent times, is attention deficit hyperactivity disorder (ADHD). And treatment of this disorder before the onset of formal education is of great help to mental health of families and society.

Most parents ordinarily are not aware of the existence of such a problem like ADHD and as such they fail to give the treatment in the initial stages itself. One of the behavioral traits in children is the difference in ability to perceive and respond to the environmental stimuli. ADHD is a behavioral syndrome characterized by inattention and distractibility, restlessness, inability to sit still, and difficulty in concentrating on one thing for any period of time. ADHD most commonly occurs in children, though an increasing number of adults are being diagnosed with the disorder. ADHD is three times more common in males than in females and occurs in approximately 3 to 6 percent of all children. (Britannica 2010) Although behaviors characteristic of the syndrome are evident in all cultures, they have garnered the most attention in the United States, where ADHD is the most commonly diagnosed childhood psychiatric disorder.
It was not until the mid-1950s that American physicians began to classify as “mentally deficient”, individuals, who had difficulty paying attention on demand. Various terms were coined to describe this behavior, among them are minimal brain dysfunction and hyperkinesias. In 1980 the American Psychiatric Association (APA) replaced these terms with attention deficit disorder (ADHD). Then in 1987 the APA linked ADHD with hyperactivity, a condition that sometimes accompanies attention disorders but may also exist independently. The new syndrome was named attention-deficit/hyperactivity disorder, or ADHD. (Encyclopedia, 2010) This syndrome was first described by Heinrich Hoff in 1854. Since then, it has been known by a variety of names like minimal brain dysfunction (MBD), hyper kinetic syndrome, Strauss syndrome, organic driven and minimal brain damage. This is a common disorder, it occurs in about 3% of school age children. Males are 6-8 time more often affected and onset occurs before the age of 7 years and a large majority of patients exhibit symptoms by the 4th years of age.

ADHD is one of the most common neurobehavioral disorders of childhood and can persist through adolescence and into adulthood. A person with ADHD has a chronic level of inattention, impulsive hyperactivity or both, such that daily functioning is compromised. The symptoms of the disorder must be present at levels that are higher than expected for a person’s developmental stage and must interfere with the person’s ability to function in different settings. (eg in school and at home) A person with ADHD may
struggle in important areas of life, such as peer and family relationships, and school or work performance.

There are many definitions about attention deficit disorders. In this section some of them are explained briefly.

1.1. ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD)

According to the Diagnostic and Statistical Manual, ADHD is a neurobehavioral disorder characterized by pervasive inattention and or hyperactivity-impulsivity and resulting in significant functional impairment. Center for Disease Control (CDC) estimates 44 million youth ages 4-17 have been diagnosed with ADHD by healthcare professionals and as of 2003, 25 million youth ages 4-17 are currently receiving medication and treatment for the disorder. In 2008, 78% school aged children were reported to have an ADHD diagnosis by their parent (CDC, 2009).

According to the Diagnostic and Statistical Manual of Mental Disorders, ADHD is a Disruptive Behavior Disorder characterized by the presence of a set of chronic and impairing behavior patterns that display abnormal levels of inattention, hyperactivity or their combination (DSM-IV, 2008).

“ADHD is a problem with inattentiveness, over activity, impulsivity or a combination. For these problems to be diagnosed as ADHD, they must be out of the normal range for the child’s age and development” (NLM, 2010).

“Attention-Deficit Hyperactivity disorder (ADHD) is a neurobehavioral development disorder affecting about 3-5% of the world’s population. It
typically present itself during childhood, and is characterized by a persistent pattern of inattention and/or hyperactivity, as well as forgetfulness, poor impulse control or impulsivity and distractibility (Wikipedia, 2009).

ADHD is currently considered a persistent and chronic condition for which no medical cure is available, although medication and therapy can treat symptoms” (Kristy, Wright, 2008).

ADHD is most commonly diagnosed in children, but over the past decade has been increasingly diagnosed in adults. About 60% of children diagnosed with ADHD retain the condition as adults.

ADHD appears to be highly heritable although, one fifth of all cases are estimated to be caused from trauma or toxic exposure. Methods of treatment usually involve some combination of medications, behavior modifications, lifestyle changes, and counseling.

The scientific consensus in the field, and the consensus of the national health institutes of the world, is that ADHD is a disorder which impairs functioning, and that many adverse life outcomes are associated with ADHD.

In the 1980 edition of the DSM III (Diagnostic Statistic Manual) it was first used as a syndrome (a group of symptoms or signs) that is usually characterized by serious and persistent difficulties, resulting in inattentiveness or a disorder characterized by short attention span and poor concentration symptoms beginning in childhood. It is also thought of as a condition of the
brain that results in excessive activity (hyperactivity) impulsivity and difficulties with focusing (Graetz BW, Sawyer MG, Hazell PL 2002).

“A mental illness characterized by an impaired ability to regulate activity level (hyperactivity), attend to tasks (inattention) and inhibit.

Attention Deficit and Hyperactivity Disorder is a disorder in which a child can not maintain attention and has poor impulse control. They may be restless and overactive (Sometimes called ADD).

1.2 TYPES OF ADHD

There are various classifications about types of ADHD. Some specialists classify ADHD into three categories, some into four categories and the others into six, which are described in this part briefly.

Three types of ADHD have been established according to the type of symptoms that are strongest in the individual. These types are described below:

A. Predominantly inattentive Type.

It is hard for the individual to organize or finish a task, to pay attention to details, or to follow instructions or conversations. The person is easily distracted or forgets details of daily routines.

B. Predominantly Hyperactive-impulsive Type.

The person fidgets and talks a lot. It is hard to sit still for long (e.g., for a meal or while doing homework). Smarter children may run, jump or climb
constantly. The individual feels restless and has trouble with impulsivity. Someone who is impulsive may interrupt others a lot grab things from people, or speak at directions. A person with impulsiveness may have more accidents and injuries than others.

C. **Combined Types:**

Symptoms of the above two types are equally predominant in the person. As many as half of those with ADHD also have other mental disorders. These combined types of ADHD (other disorder that occur along with ADHD) can make it harder to diagnose and treat ADHD. They may also present further challenges to the individual with ADHD.

**SIX TYPES OF ADHD**

Dr. Daniel Amen (2002) has written a great book on the subject, titled “Healing ADHD: The breakthrough program that allows you to see and Heal the 6 Types of ADHD where he uses his SPECT scans of patient’s brain activity to help in making his six classifications.

Amen Daniel classified ADHD in to six types as the following:

1. Classic ADHD - Inattentive, distractible, disorganized and perhaps hyperactive, restless and impulsive.

2. Inattentive ADHD - Inattentive, and disorganized.

3. Over-focused ADHD - Trouble shifting attention, frequently stuck in loops of negative thoughts, obsessive, excessive worry, inflexible, oppositional and argumentative.
4. Temporal Lobe ADHD - Inattentive and irritable, aggressive, dark thoughts, mood instability, very impulsive. May break rules, fight, be defiant, and very disobedient poor handwriting and trouble learning are common.

5. Limbic System ADHD - Inattentive, chronic low-grade depression, negative, low energy, feelings of hopelessness and worthlessness.

6. Ring of Fire ADHD - Inattentive, extremely distractible, angry, irritable. Overly sensitive to the environment, hyper-verbal, extremely oppositional, possible cyclic moodiness.

**Type of ADHD that are called ‘Limbic System ADHD’**

SPECT scans show that when the brain is at rest, there is increased activity deep in the limbic system, in parts of the brain called the thalamus and hypothalamus. There is also a decreased level of activity in the underside of the pre-frontal cortex. When the brain is placed under a work load, as during a homework assignment, nothing changes. The over-active limbic system remains over-active, and the under-active pre-frontal cortex remains under-active.

**Other, More Difficult Kinds of ADHD**

There are other kinds, or types, of ADHD that we should be aware of. These distinct types of ADHD can be very severe. They require significant treatment, and great patience on the part of the parents.
1.3. BEHAVIORAL CHARACTERS

As mentioned, in the previous section DSM-IV divided ADHD into three types, in this part the behavioral characters of each type is explained.

1.3.1. Behavioral characters of Inattentive type

Children who exhibit the symptoms of Inattentive type often have difficulty responding to directions, participating in organized tasks, and neglect to complete assignments that have been given to them at school or in the home. They also may resist activities that require sustained mental effort, and they are prone to making careless mistakes in their schoolwork. Other symptoms of Inattention include forgetfulness, a high susceptibility to boredom and distraction, and a tendency to lose materials, such as schoolbooks or pencils that are needed to complete assignments that have been given to them.

In the NIMH site following symptoms for attentive disorder are listed:

1. Be easily distracted, miss details, forget things, and frequently switch from one activity to another.

2. Have difficulty focusing on one thing. Become bored with a task after only a few minutes, unless they are doing something enjoyable.

3. Have difficulty focusing attention on organizing and completing a task or learning something new.

4. Have trouble completing or turning in homework assignments, often losing things (e.g., pencils, toys, assignments) needed to complete tasks or activities.
Not seem to listen when spoken to.

Daydreams, become easily confused, and move slowly.

Have difficulty processing information as quickly and accurately as others struggle to follow instructions.

A.1) In the diagnosis criteria of DSM-IV these symptoms for inattentive type are included:

(a) Often fails to give close attention to details or makes careless mistakes in schoolwork, 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 on instructions and fails to finish schoolwork, 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 schoolwork or homework).

(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.
1.3.2. Behavioral characters of Hyperactivity-Impulsivity

Children who exhibit the symptoms of Hyperactivity - Impulsivity often have difficulty sitting still and appear to be constantly "on the go." Those children that suffer from this form of natural attention deficit disorder or attention deficit hyperactivity disorder are often described as disruptive in the classroom because they may experience difficulty waiting their turn, and they may often blurt out answers and speak out when they are not called on. Other symptoms of hyperactivity-impulsivity include fidgeting, restlessness, and an inability to play quietly.

A.2) In the diagnosis criteria of DSM-IV these symptoms for hyperactivity - Impulsivity are included:

If six (or more) of the following symptoms of hyperactivity/impulsivity have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Hyperactivity

(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 adolescents 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 acts as if “driven by a motor”.

(f) Often talks excessively.

**Impulsivity**

(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 caused impairment were present before age 7 years.

C. Some impairment or 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).

1.3.3. **Code based on type:**

**Attention-Deficit/Hyperactivity Disorder, Combined Type:**

If both Criteria A1 and A2 are met for the past 6 months.
Attention-Deficit/Hyperactivity Disorder, Predominantly Inattentive Type:

If Criterion A1 is met but Criterion A2 is not met for the past 6 months.

Attention-Deficit/Hyperactivity Disorder, Predominantly Hyperactive-Impulsive Type:

If Criterion A2 is met but Criterion A1 is not met for the past 6 months.

The diagnosis of ADHD is based on criteria specified by the Diagnostic and Statistical Manual of Mental Disorders (DSM). According to these collaborative guidelines, the diagnosis of ADHD should be based on information obtained from parents, school, and health professionals who may have been consulted, along with an interview and examination of the child. (APA, 1994) Epidemiologic information on ADHD is scarce because few population-based studies have been done and partly because of changing diagnostic criteria overtime. (Herrerias C.T, Perrin J.M, Stein MT, 2001) ADHD manifests in approximately 4-12% of children between the ages of 6 and 12 years. (Brown RT, Freeman WS, 2001) Several studies estimated a prevalence of ADHD of 4-8% in USA, 7.6% to 9.5% in Korea (Chae P.K, Jung H.O, Noh K. 2001), 10-20% in India (Malhi P, Singhi P. 2000), and 29.7% in United Arab Emirates. (Bu-Haroon, A, 1999) Data about prevalence of ADHD in Iran is varying. For example in Iran prevalence rate in Shiraz city is 5.8% (Alishhi & Dehbozorgi, Dehghan, 2001) but in Mashhad city 15.3% was determined (Telaie & Mokhber, 2005).
A total of 19 studies have now been published which used the DSM-IV diagnostic criteria. Six studies reported the prevalence of ADHD symptoms and gave rates of 9.5-16.1% (Baumgaertel A, Wolraich M.L, Dietrich M 1995). When only the four studies of children with mean ages of approximately 8-10 years are considered, this gives a prevalence range of 11.4 - 16.1%. Most of these studies diagnosed ADHD on the basis of either teacher or parent reports; only (Rowland A.S, Umbach D.M, 2001) and Wolraich M.L. Hannah J.N. Baumgaertel A, et al (1998) reported the prevalence rate of ADHD both according to symptoms alone (16.1%) and when functional impairment was also required (6.8%). This indicates that estimates of ADHD prevalence based on symptom assessment alone are likely to be overestimated. However, such data may be useful to assess the relative prevalence of ADHD symptoms in different countries and cultures with the caveat that this should not be equated with the actual prevalence of ADHD. Of the 11 studies of non-US populations, all except one used teacher and/or parent assessments of ADHD symptoms. Of these 10 studies, nine were in children with a mean age between 7 and 11 years. These nine studies reported rates of ADHD symptoms ranging from 2.4 to 19.8% of these studies, five reported rates in the narrower range of 16.0-19.8%, which is at the high end of the range reported for the six US studies which spanned a similar age range. The studies that reported lower rates (2.4-7.5%) were two studies of Australian populations, the only study of an Icelandic population, and the Swedish study. The low rates in the Australian, Icelandic and Swedish studies may reflect cultural differences in
these populations. However, it is interesting to note that in one of the Australian studies (Gomez R. Harvey J, 1999) which reported the lowest prevalence rate (2.4%) when using combined teacher and parent assessments, the prevalence rates based on parent assessments alone (9.9%) and teacher assessments alone (8.8%) were similar to those reported in the US studies. Two studies additionally reported prevalence rates based on functional impairment and these rates were lower than those for symptoms alone – symptom prevalence, 7.5%; impairment prevalence, 6.8% (Graetz B. W. Sawyer M.G, Hazell P.L, (2001) symptom prevalence, 15.8%; impairment prevalence, 0.2% (Essau C.A. Groen G. Conradt J, 1999).

Although evidence supports the use of double-blind placebo medication trials to evaluate methylphenidate (MPH) effects on the core behavioral symptoms of attention-deficit/hyperactivity disorder (ADHD), few studies have demonstrated their utility in examining MPH effects on the cognitive deficits associated with ADHD. A article by (Hale, J.B & Hoeppner, J.A & Dewitt, M.B, 1998) presents a technique for evaluating behavioral and cognitive dose-response relationships at the single-subject level of analysis. Case study results and multivariate analyses suggest that systematic evaluation of behavioral and cognitive MPH dose-response relationships could lead to more accurate MPH titration and greater long-term multimodal treatment efficacy. In another studied (Dary Efron, Frederick Jarman, and Melinda Barker, 1997) at the Centre for Community Child Health and Ambulatory Paediatrics, Royal Children's Hospital, Melbourne, Victoria, Australia, a comparison of the side
effect profile of methylphenidate (MPH) and dexamphetamine (DEX) in children with attention deficit hyperactivity disorder (ADHD) was done. They showed that DEX caused more severe insomnia and appetite suppression compared with the baseline rating. Appetite suppression was the only item rated more severe on MPH than at baseline.

A study on Behavior therapy and methylphenidate in the treatment of children with ADHD (Klein R.G, & Abikoff H, 1997) showed that have been result to parents and teachers viewed children on behavior therapy as improved, but objective observations did not document behavioral change in contrast. Methylphenidate and the combined treatment induced significant improvement in all measures of outcome. Methylphenidate and the combination treatments were significantly superior to behavior therapy in a few instances, the combination, which normalized behavior, was superior to methylphenidate treatment. Children switched to placebo deteriorated significantly. Behavior therapy delivered in school and home was found not nearly as effective as methylphenidate for ADHD, but may be a useful adjunct to methylphenidate. The efficacy of cognitive training as a single intervention and as an adjunct to stimulant treatment is also discussed. The impact of training on the cognitive, academic, and behavioral functioning of youngsters with ADHD is summarized. Although this treatment modality is inherently appealing, there is little empirical support for its clinical utility with children with hyperactivity. Susan Hansen, Karen Meissler and Richard ovens (2000) studied a group play therapy model designed for youth that present with Attention Deficit Disorder /
Attention-Deficit / Hyperactivity Disorder (ADD / ADHD) symptomatology. These symptoms include, but are not limited to impulsivity, disruptive behaviors, social skill deficits as well as ineffective communication skills. This model, unlike current deficit, psychoeducational models, is based in a play therapy, process-oriented framework. The model utilizes concepts from attribution theory as well as social learning theory to assist in skill enhancement and practical social experience. The research on this program demonstrated a positive impact showing a significant increase in self-esteem, which ultimately allows for a heightened level of functioning and overall increased ability to engage in socially acceptable behavior. Efficacy of Cognitive-Behavioral therapy in the treatment of children with ADHD, with and without aggressiveness was studied by Miranda, Maria Jesus and Rosa Garcia (2009) at the University of Valencia (Spain) and University of Castellon (Spain).

Behavior as any action a human does is a product of interaction between human internal features and the reactions he receives after that. In this sense, all behavior, including child behavior disorders are a product of this interaction. One common behavioral disorder that is known in childhood and is specifically more obvious in the first stages of formal education and also has substantial impact on the children’s life and educational process is ADHD.

There is no doubt that timely identification and appropriate treatment of this disorder is a huge help to provide health and social welfare. Currently, there are several different estimates of the prevalence of the disorder in
different communities and also different ways and methods that are used to treat this disorder.

1.4. NEED FOR THE STUDY:

Doubtless recognition and treatment of disorders of the childhood are of great help to mental health of family and society. Attention deficit disorder is one of the most important disorders in children, and many of the families encounter this problem. According to the Diagnostic and Statistical Manual, ADHD is a neurobehavioral disorder characterized by pervasive inattention and or hyperactivity-impulsivity and resulting in significant functional impairment. A survey of parents report. (The National Survey of Children's Health CDC) found an estimated 7.8% of children in the US aged 4-17 years had been given a diagnosis of ADHD. This new CDC study looked at the results of the second administration of the National Survey of Children's Health in 2007. This study found that the rate of parent-reported ADHD diagnosis among children 4-17 years of age increased by 22% between 2003 and 2007, from 7.8% to 9.5%. It also noted that the patterns of parent-reported ADHD diagnosis are changing in the United States. Parents of an estimated 5.4 million children in the United States reported a history of ADHD diagnosis in 2007. That is, nearly one in ten school-age children who had been given an ADHD diagnosis; a million more children than were reported in 2003. (www.cdc.gov, 2011).

Though ADHD was first described by Heinrich Hoff in 1854, in spite of the many researches, in ADHD there is a lot of ambiguity about the prevalence rate, etiology and treatment of the ADHD. At present there is no acceptable
estimate of prevalence in Boushehr city, Iran. While the reports from clinics and teachers indicate that a significant number of children suffer from this disorder, due to the lack of correct and reliable data from educational organizations there are no program for these children in this city. To necessitate programming by education organizations there must be an accurate estimation of the prevalence rate.

Although, there are many therapies parents are interested to undergo psychological therapy for treatment of ADHD these days. The degree of effectiveness of psychological treatment are however not yet determined. Therefore, it is considered necessary that the researches should be done to indicate the prevalence rate and effectiveness of psychological treatment methods for ADHD. Currently, there are several different estimates of the prevalence of the disorder in different communities and also different ways and methods are used to treat this disorder. In this study, first, the prevalence of the disorder in schoolchildren in Boushehr city is estimated then in order to understand the effectiveness of psychological treatment considering the common treatments for this disorder, children with this disorder will be treated in two ways namely, “behavior therapy” and “play-therapy.

1.5. STATEMENT OF PROBLEM:

“A study on the prevalence of attention deficit disorder among primary schools population of Boushehr City - Iran and the effectiveness of behavior therapy and play therapy in it’s treatment.”
1.6. DEFINITION OF TERMS:

**Prevalence**: the frequency of occurrence or onset of new cases of a disorder as a proportion of a population in a specific time period, usually expressed as the number of new cases per 100,000 per annum.

**Attention deficit/hyperactivity disorder**: A behavioral syndrome characterized by inattention, distractibility, restlessness, and inability to sit still, and difficulty concentrating on one thing for any period of time is ADHD.

**Behavior therapy**: collection of psychotherapeutic techniques aimed at altering maladaptive or unwanted behavior patterns, especially through the application of principles of conditioning and learning.

**Play therapy**: A form psychotherapy used with children in which play is used to facilitate communication between client or patient and therapist.

**Primary school**: centre of training for children less than 6 years.

1.7. OBJECTIVES OF THE RESEARCH:

This study has two main objectives:

1) Identification and correct estimation of prevalence of attention deficit disorder in school children in the city of Boushehr to provide appropriate mechanisms for recognition and then timely referral of these children for treatment.

2) The second one is to know the extent of the effectiveness of the two treatment methods Behavior therapy and play therapy.
In addition to the above-mentioned objectives, this study follows the following sub-objectives as well:

1. Identify and estimate the prevalence of ADHD in different ages and different educational foundations.

2. Identify and estimate the prevalence of ADHD in male and female students.

3. Identify and estimate the prevalence of ADHD in different family and socio-economic conditions.

4. Identify the effectiveness of behavior therapy and play therapy in treatment of ADHD.

5. Identify the rate of the effectiveness of responsibility-taking and the role of the family in the treatment of ADHD.

6. Identify the extent of the effects of the role of children participation in each of the treatment methods.

1.8. **STATEMENT OF HYPOTHESES**

- There is no significant correlation between prevalence rate of ADHD and age.

- There is no significant difference between prevalence rate of ADHD and sex.

- There is no significant correlation between prevalence rate of ADHD and family size.
• There is no significant correlation between prevalence rate of ADHD and socioeconomic class.

• There is no significant difference between behavior therapy and play therapy in the treatment of children with ADHD.

• There is no significant correlation between rate of family participation and effectiveness of treatment.

• There is no significant correlation between participation rate of children in behavior therapy with play therapy.

1.9. SIGNIFICANCE OF THE STUDY

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 significant 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 on the three things:

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

(2) How he or she gets along with other children, and
(3) His or her success in school psychosocial treatments are effective in treating these important domains. Second 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. Numerous studies over the last 30 years show that both medication and behavioral treatment are effective in improving ADHD symptoms. Short-term treatment have found that medication alone is more effective in treating ADHD symptoms. When medication is compared to behavioral treatment, it has been found that medication alone is more effective in treating ADHD symptoms than behavior therapy alone. But combining two approaches have been found to yield better result with medication alone. The best designed long-term treatment study is the Multimodal Treatment Study of Children with ADHD (MTA.) 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 were 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.

1.10. METHODOLOGY IN BRIEF

Research methodology is a way to systematically solve the research problems. Methodology includes the various steps that are generally adapted by a researcher for studying his research problem, along with the logic behind them. The methodology for this study was designed to determine two main objectives:

First is to identify the prevalence rate of ADHD in primary school students in Boushehr city and second is to compare the effectiveness of play therapy and behavior therapy in the treatment of ADHD’s children. The present study has two parts, first part is a correlational research and second part is an experimental research.

Tools

Tools used for this research include:

1) A diagnostic tool for ADHD (Vanderbilt CSI-4)
2) A personal data schedule to collect personal information.

**Sampling**

The sample included for this research was 17565 students from primary schools studying in 117 schools in Bushehr city. From among this 117 schools considering the proportion of the females to males, and the types of the schools 25 schools were selected and from each school 40 students of different classes were selected randomly. The final sample consisted of 949 subjects in the primary school in Boushehr city.

**Statistical Techniques**

The statistical techniques employed the study for the analysis of data were: t-Test, ANOVA and Correlation Coefficient.

**1.11. ORGANIZATION OF THE REPORT**

This thesis is arranged in to 6 Chapters. Chapter I- Introduction, Chapter II- contains the Theoretical perspectives in ADHD, Chapter III- Review of literature and studies related to prevalence rate and treatment of ADHD. Chapter IV Methodology of research, Chapter V Results, Analyses and discussion, Chapter VI, Conclusion, Implication and limitation of study and Scope for future study.