ADHD in Adults:
Development of a resource for Primary Care Providers

by

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ABSTRACT

Attention Deficit Hyperactivity Disorder (ADHD) is one of the most common psychiatric disorders found among adults in the United States. According to the 2003 National Comorbidity Survey Replication, 4.4% of Americans suffer from ADHD. This survey also reaffirmed previous studies, which concluded that adult ADHD continues to be underdiagnosed and consequentially undertreated.

The purpose of this paper is to describe basic educational materials and a self-report questionnaire that could assist primary care providers in recognizing ADHD symptoms in adults. In this project, an attempt was made to develop a quick reference/questionnaire for Primary Care Providers, which will serve to improve ADHD identification procedures, and to ensure prompt referral of patients to a psychiatric mental health care specialist. The use of this resource may result in better care for patients by allowing easier differentiation between various mental conditions, drug and ETOH abuse, and other comorbid disorders arrayed by ADHD.
CHAPTER 1

Problem Statement

Attention Deficit Hyperactivity Disorder (ADHD) in adults is one of the psychiatric disorders that remains underdiagnosed in United States. According to the 2003 National Comorbidity Survey Replication (NCS-R), 4.4% of Americans suffer from ADHD. The NCS-R survey also reaffirmed previous research which concluded that adult ADHD continues to be underdiagnosed and consequentially undertreated (Adler & Weiss, 2004). The ongoing debate over the origins of this disorder has produced multiple theories, the three most dominant are discussed in this project. The most resent theory describes ADHD as a polygenic disorder, because more than 50 genes have been identified as a potential cause of this condition. Only 10 of these genes may be needed for developing symptoms (Comings, Chen, Blum, Mengucci, Blum, & Meshkin, 2005). The second theory considers socio-environmental origins as the most probable source of this disorder (Biederman & Faraone, 2004). The third theory cites “organic” origins as the most probable cause of this disorder. At the same time, some researchers insist that there are different factors explaining a variability in the estimated prevalence rates of ADHD (Volkmar, 2003). In addition, there is no common ground in defining characteristics and symptoms of ADHD. A deviation in a socially acceptable behavior can be recognized as a presence of multiple symptoms of this condition and no clear defining characteristics based on symptoms alone. For example, one of the important steps in determining (differentiating) properties of the disorder would to include a strict definition of syndrome thresholds. It was observed during research that followed children with
attention difficulties that ADHD related problems could be persistent and create significant difficulties in adulthood (Volkmar).

According to the World Federation of Mental Health (WFMH), “Up to 60% of children with ADHD continue to have significant symptoms as adults” (2004, p. 453). Biederman and Faraone (2004) conducted a study with children suffering from ADHD from an early age. This study followed research subjects until the age of 19. According to this study, up to 90% of the subjects had clinically significant impairments, 72% had at least one third of ADHD symptoms, and 38% of patients maintained the full ADHD diagnosis. In order to improve the diagnosis and treatment of ADHD in adults, primary care providers have to be equipped with efficient tools, which would allow them to detect ADHD affected patients, and refer them to a mental care specialist for further evaluation.

Despite the fact that ADHD is considered a relatively mild disorder, the consequences of non-treatment can be very serious (substance abuse, delinquency, major traffic accidents, injuries), and as a result involve utilization of multiple health care resources to a great extent (Wender, 2000). The vast majority of primary care providers are inexperienced in the diagnosis of an adult with ADHD. According to McCormick, the diagnosis of ADHD in adults is rare in the primary care environment. He also suggests that the greatest impact on the diagnosis of ADHD among adults could be achieved by clinicians who have experience in the evaluation and management of children and adolescents with the disorder (2004). Indeed, diagnosing adults with ADHD remains a difficult and formidable task because there are no objective biological tests to detect ADHD.
The diagnosis of ADHD has to be made utilizing, extant subjective criteria and clinical history (Braun, et al. 2004). Furthermore, the diagnosis can be complicated by the high rate of comorbid psychiatric conditions with overlapping symptoms.

Purpose

The purpose of this paper is to describe the development of a resource containing basic educational material and a self-report questionnaire to better prepare primary care providers in recognizing ADHD symptoms in adults so that appropriate referrals to psychiatric mental health providers can occur for more thorough assessment and diagnosis.

Background Information

ADHD is a very common psychiatric condition in children, it effects about 5% of the child population. This disorder/condition has a variety of different names such as minimum brain dysfunction, hyperactivity, attention-deficit disorder, and attention-deficit hyperactivity disorder (Wender, 2000). Psychiatric literature recognizes the most recent discovery of this disorder in the late 1800s and early 1900s. Still, a British physician, was the one who first recognized the signs and symptoms of ADHD in children. “Fidgety Phil”, as it was known, was treated with amphetamines such as Dexedrine or Dexoxyn in the late 1800s and early 1900s (Wender, 2000). It is believed that ADHD in approximately 70% of cases is transmitted genetically, possibly due to different structures and/or functioning of the brain. The remaining cases can be explained with a variety of environmental factors. The comorbidity of ADHD with other disorders (oppositional defiant disorder and conduct disorder) is very common (Faraone, 2006). According to
Diagnostic and Statistical Manual of mental disorders- fourth edition- text revision (DSM-IV-TR, 2000) there are three subtypes of AD/HD: Predominantly Inattentive Type, Predominantly Hyperactive Type, and Combined type. Males are twice as likely to be diagnosed with AD/HD then are females. The gender difference ratio may go as high as 9:1, depending on the type. In the case of the Predominantly Inattentive type of AD/HD, the gender quota is not so definite (DSM-IV-TR, 2004.) During the 1980s AD/HD was referred to as ADD (Attention Deficit Disorder). According to Barkley (2000), it created some labeling confusion because the AD/HD predominantly inattentive type often was called ADD.

It is very common that children with ADHD will continue to have symptoms in adolescence and adulthood (Wender, 2000). These symptoms (see table 2.2) may not be as noticeable in children and/or adults, however, with correct diagnostic tools it is possible to diagnose and manage this disorder with appropriate medications.

There are no specific physiological or biochemical tests available for determining if a child, adolescent, or adult has ADHD. The diagnosis in children is based on a carefully collected verbal history from parents, close relatives and school during interviews and on established rating scales; the goal is to determine the presence, frequency and severity of symptoms (Wender, 2000).

Definitions Used in the Report

For the purpose of this project, adult will be defined as an individual 18 years old and older.
ADHD is a “persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequently displayed and more severe than is typically observed in individuals at a comparable level of development” (DSM-IV-TR, 2000, p. 85).

A primary care provider (PCP) is a health care professional who provides you with comprehensive medical care. A Primary Care Provider can be a medical doctor (MD), a physician’s assistant (PA) or a nurse practitioner (NP). The PCP conducts the regular physical exams and takes care of health care needs. When necessary, the PCP refers to a specialist for further examination and treatment (Primary care, 2007).

Summary

Although ADHD has been recognized for more than a century, this condition remains underdiagnosed in the adult population. It appears that the rate of detection of adults with ADHD correlates with the rate of detection of other comorbid psychiatric conditions. PCPs do not have the necessary tools to diagnosis this disorder and refer patients to a specialist for assessment and treatment. An extended search of CINAHL, MEDLINE, MEDSCAPE and GOOGLE was conducted; there is very limited availability of professional educational materials to guide PCPs with the diagnosis of ADHD. This situation is partially fueled by an established public opinion that AD/HD is only a disorder in children. This situation of under diagnosis creates a whole constellation of problems including, but not limited to, underemployment and increasing car insurance rates due to accumulating numerous traffic tickets and being in involved in auto accidents (Barkley & Murphy, 2006). In this project, an attempt will be made to develop an educational reference/questionnaire for PCPs, which will serve to improve ADHD
symptom identification procedures and better ensure prompt referral of patients to a psychiatric mental health care specialist. This may assist PCPs in differentiating between various mental conditions, poly-substance abuse, and other comorbid disorders such as oppositional defiant conduct, Tourette’s, and antisocial personality disorders.
CHAPTER 2

Introduction

This chapter will describe the selection of a theoretical model chosen to serve as a foundation for this report, along with a discussion about the benefits and shortcomings of this theoretical model. This will be followed by a detailed literature review.

Many psychiatric disorders (antisocial personality disorder, Tourette’s disorder, anxiety disorder, mania, primary depressive disorder) and medical conditions (Thyroid problems/abnormalities, hormonal imbalance, brain damage) have some symptoms similar to ADHD (Barkley, 1996). A comprehensive evaluation of ADHD and related conditions should be conducted by a team of clinicians, trained in the detection of the disorder. This team can utilize a set of definitions developed by the American Psychiatric Association (APA), included in the *DSM-IV-TR* (2000), by comparing it to the patient’s pattern of behavior (U.S. Food and Drug Administration, 2004). The nature of this evaluation is more psychological, rather than medical. Since the *DSM-IV-TR* (2000) criteria were developed based upon the observation of children, some limitations have to be taken into consideration when applying these criteria to adults (Spencer & McGough, 2006). Thus, the diagnosis of ADHD in adults remains a difficult task for PCPs. Reasons complicating diagnosis of ADHD by the PCP include a whole compilation of practical and theoretical problems. The major obstacle is the absence of a common theory explaining the biological, biochemical and physiological roots and models detailing the development of ADHD in adults and children (Attention Deficit Disorder Association, 2007). In this situation, having a comprehensive theoretical model of the disorder is very
important. This should determine the direction for future research, which could lead to improvements in existing treatment approaches, diagnostic techniques, and procedures for the treatment of ADHD in primary care.

Models of ADHD

Despite placing different emphases and citing various neuropsychological causes as mainly responsible for the origin and development of ADHD, most existing models agree that all symptoms of the disorder are based on abnormal processing of information in an individual’s brain. Five of the most current models include: The Delay aversion model, The Behavioral inhibition activation model, The Inhibition model, The Executive function model, and The Cognitive-energetic model. None of the above mentioned models are capable of providing a complete description of the connection between biochemical processes on the neuron level and behavioral manifestations (Sergeant, 2005).

The Cognitive-energetic theoretical model (CEM) is considered to be one of the most comprehensive models describing ADHD. CEM evaluates information processing efficiency in the brain impacted by ADHD by determining it as a product of three discrete levels: computational mechanisms of attention, state factors, and management/executive function. The interplay of these three levels can determine the overall efficiency of this model’s information processing system (Sergeant, 2005).

There are four stages in the computation mechanisms of attention, which is considered to be first level of the CEM. These include: encoding, search, decision, and motor organization. These stages take care of processing information associated with
experimental task variables.

Table 2.1. Cognitive Energetic Theoretical Model

```
<table>
<thead>
<tr>
<th></th>
<th>CEM</th>
<th>CMof A</th>
<th>SF</th>
<th>EF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encoding</td>
<td>Effort</td>
<td>Arousal</td>
<td>Activation</td>
<td></td>
</tr>
<tr>
<td>Search</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decision</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor organiz.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

Diagram developed by writer based on Sergeant’s (2005) CEM.

The second level, State Factors, contains three energetic pools: effort, arousal and activation. The Effort Pool conducts excitement or inhibiting of the other two depending on a row of variables such as cognitive load. The activation of the Effort pool occurs when the current condition of the organism needs to be changed to a different state, adequate to the task it (organism) needs to perform (Sergeant, 2005). The Arousal Pool, another component of the second level, is the factor that is associated with mesencephalic reticular formation and the amygdala as part of the brain. Its function is producing a time
locked response proportional to incoming signal intensity and novelty. The third component of the State Factor level is activation, which stimulates physiologic readiness to respond. Activation is affected by a number of task variables, which include preparation, alertness, time of day, and time on task (Sergeant). The parts of the brain involved in these activities are the basal ganglia and the striatum. The context of ADHD is greatly influenced by the relationship between these energetic pools. In addition, the effort and activation pools have a significant effect on motor output (Sergeant).

The last level of the CEM, is an overriding management or executive function (EF). EF is considered to be a combination of cognitive processes necessary for reaching a future goal. It is involved in the planning, monitoring, detection and correction of errors. Among the various components comprising executive function, response inhibition, response conflict and working memory are the areas of primary interest in ADHD related research (Sergeant, 2005). These components determine one’s capacity to do what he or she intended to do, by sustaining appropriate level of attention despite various distractions, mounting fatigue, and weakening interest (Hunt, 2006).

According to CEM, response inhibition and response conflict are parts of overriding management functions damaged by ADHD. Results of a metaanalysis based on twenty-three studies indicated that inhibitory function varies more and longer in patients with ADHD (Sergeant, Geurts, Huijbregts, Scheres, & Oosterlaan, 2003). Latency in decision-making in situations when two or more stimuli are activated simultaneously is referred to as a response conflict. Magnetic Resonance Imaging (MRI) and positron tomography (PT) based studies conducted by Sowell indicated that this issue
needs further exploration (Sowell, Thompson, Welcome, Henkenius, Toga, & Peterson, 2003). However, both response inhibition and response conflict also are specific to several other mental disorders, and cannot serve as a definitive sign of ADHD (Sergeant, 2005).

Working memory (WM) is a process of maintaining and manipulating stimuli in a short-term buffer. Several studies conducted between 1997 and 2002 reported abnormalities in the WM performance among ADHD patients, when compared to the control group (Sergeant, 2005).

In writer’s opinion, it has to be noted that in the early 1980s, when CEM was developed, Sergeant, the author of this model, and the APA considered ADHD mainly a childhood psychiatric disorder. A comparison of symptoms (Table 2.2) between adults and children demonstrates a range of similarities. This suggests that adults may have more developed versions of the same problems as children.
Table 2.2. ADHD In Children vs Adults-Symptom Migration

<table>
<thead>
<tr>
<th>DSM-IV-TR symptoms of inattention in childhood</th>
<th>Symptoms of inattention in adulthood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has difficulty sustaining attention</td>
<td>Has difficulty sustaining attention to reading or paperwork</td>
</tr>
<tr>
<td>Is easily distracted and forgetful</td>
<td>Is easily distracted and forgetful</td>
</tr>
<tr>
<td>Does not follow through</td>
<td>Has poor concentration</td>
</tr>
<tr>
<td>Cannot organize</td>
<td>Manages time poorly</td>
</tr>
<tr>
<td>Loses things</td>
<td>Misplaces things</td>
</tr>
<tr>
<td>Does not listen</td>
<td>Has difficulty finishing tasks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DSM-IV-TR symptoms of hyperactivity in childhood</th>
<th>Symptoms of hyperactivity in adulthood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Squirms and fidgets</td>
<td>Shows inner restlessness</td>
</tr>
<tr>
<td>Runs or climbs excessively</td>
<td>Fidgets when seated</td>
</tr>
<tr>
<td>Cannot play or work quietly</td>
<td>Self-selects active jobs</td>
</tr>
<tr>
<td>Talks excessively</td>
<td>Talks excessively</td>
</tr>
<tr>
<td>Seems &quot;on the go,&quot; driven by a motor</td>
<td>Feels overwhelmed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DSM-IV-TR symptoms of impulsivity in childhood</th>
<th>Symptoms of impulsivity in adulthood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blurts out answers</td>
<td>Drives too fast, has traffic accidents</td>
</tr>
<tr>
<td>Cannot wait his or her turn</td>
<td>Impulsively changes jobs</td>
</tr>
<tr>
<td>Intrudes on or interrupts others</td>
<td>Is irritable or quick to get angry</td>
</tr>
</tbody>
</table>

Adapted from Adler & Cohen. (2004); DSM-IV-TR (2000)

Since 1960, when Chess hypothesized in her work "Hyperactive Child Syndrome" that hyperactivity is not caused by brain damage there has been a vast amount of research literature published. The research targeted a wide spectrum of issues and various audiences (Chess, 1960).

Epidemiology of ADHD & Basic Statistics

ADHD has been found in multiple countries and cultures studied. ADHD related research has been conducted in many European countries, including Great Britain,
Germany, France, Italy, as well as Turkey. China, Japan, Australia, and Canada were also mentioned among countries conducting research on ADHD. In the United States, rates of diagnosis are similar or slightly higher then in the rest of the developed nations. However, trends in diagnostic rates in those countries suggest that soon they will reach rates similar to those in the US. The only study which reported a significantly higher prevalence of ADHD symptoms was conducted in the Ukraine: 19.8% among Ukrainian children compared to 9.7% for the similar US sample (Gadow, Nolan & Litcher, 2000). It is estimated that 5-8% of children and 4-8% of the adult population suffer from ADHD (APA, 2007).
In 2004, the US environmental protective agency reported the following data:

Table 2.3. Percentage of children ages 5-17 reported to have attention-deficit/hyperactivity disorder, by race/ethnicity and family income, 2001-2004.

<table>
<thead>
<tr>
<th>All races/ethnicities</th>
<th>All Incomes</th>
<th>&lt; Poverty Level</th>
<th>100-200% of Poverty Level</th>
<th>&gt; 200% of Poverty Level</th>
<th>Unknown Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>All races/ethnicities</td>
<td>7.7</td>
<td>8.8</td>
<td>7.7</td>
<td>8.0</td>
<td>6.3</td>
</tr>
<tr>
<td>White non-Hispanic</td>
<td>9.0</td>
<td>12.8</td>
<td>10.1</td>
<td>8.9</td>
<td>7.3</td>
</tr>
<tr>
<td>Black or African-American, non-Hispanic</td>
<td>7.6</td>
<td>9.0</td>
<td>8.1</td>
<td>6.2</td>
<td>7.7</td>
</tr>
<tr>
<td>Asian, non-Hispanic</td>
<td>1.6</td>
<td>NA</td>
<td>NA</td>
<td>2.4</td>
<td>NA</td>
</tr>
<tr>
<td>Hispanic</td>
<td>4.2</td>
<td>4.9</td>
<td>3.8</td>
<td>5.2</td>
<td>2.8</td>
</tr>
<tr>
<td>Other †</td>
<td>7.3</td>
<td>5.7</td>
<td>NA</td>
<td>7.0</td>
<td>NA</td>
</tr>
</tbody>
</table>

† "Other” includes non-Hispanic respondents whose single or primary race is neither White, Black, African-American or Asian.

Table adopted from American’s Children and the Environment web site (2007).

In 2004, the Center for Disease Control reported that boys were twice as likely to have ADHD than girls. The rate was 10.2% for boys and 4.5% for girls (CDC, 2004).

These ratios appear to be matching lower estimates of *DSM-IV-TR* (2000)cited above.

Statistics representing ADHD in adults is slightly different. The National Institute of Health (NIH) estimates that 4.1% of adults in the USA have ADHD. According to Kessler, 4.4% of adults between the ages of 18 and 44 appear to be suffering from ADHD (Kessler, et al. 2005).
What is ADHD?

Symptoms of ADHD in Children

ADHD is the one of the most common chronic psychiatric disorders diagnosed in young children. The major characteristics of ADHD are inattention, hyperactivity, and impulsivity. Most often these symptoms appear in early childhood. It is estimated that between 3 and 5 percent of children have ADHD. The symptoms of ADHD can develop and appear over many months. In the beginning, a child will present with symptoms of impulsivity and hyperactivity. However, symptoms of inattentiveness are not necessarily present at the same time. Children who can not sit still are labeled as being disruptive in school and at home, and also inattentive daydreamers are at times overlooked. Children, who are impulsive and act before thinking are usually considered to have some problems with behavior and/or a lack of discipline (Wender, 2000). Also, a child who is passive, and inactive, sometimes may be viewed as just unmotivated. In reality, all these children could be suffering from different types of ADHD. There are common symptoms in all children with ADHD such as periodical restlessness, acting without thinking and daydreaming. Children with the hyperactive type ADHD can experience distractionability, poor concentration and impulsivity; these symptoms typically effect school performance, socialization with peers, and introduce behavioral problems. The diagnosis of ADHD can be a challenging process if a child demonstrates or gives a history of inattentiveness as a primary symptom (DSM-IV-TR, 2000).

The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR, 2000) considers three patterns of behavior that can be seen in children with ADHD. These
include inattentiveness, hyperactivity and impulsivity. Impulsivity is more common in school age children than in adults. In some cases, a child can have only two of the three behavioral pattern characteristics of ADHD, impulsivity and hyperactivity symptoms and/or inattentiveness. There are cases when all three symptoms are present, leading professionals to recognize three types of ADHD depending on symptom prevalence. The predominant hyperactive-impulsive type without significant inattention; the predominant inattentive type without significant hyperactive-impulsive behavior, and the type with a combination of both inattentive and hyperactive-impulsive symptom. (DSM-IV-TR, 2000).

A hyperactive child appears as being always “on the go”, restless, hypertalkative, and fidgety. An impulsive child responds prior to thinking, acts immediately, gives inappropriate comments, becomes very emotional, does not acknowledge consequences of their actions, and does not wait for his/her turn. Such behavior may be explained by EF (executive function) deficiencies and by failures of mechanism of inhibition, which could be caused by energetic dysfunction. The effect of ADHD on the response organization is blamed directly on pools of activation and an effort from the second level of CEM (Sergeant, 2005). Inattentive children have a hard time concentrating on the same task even for a short period of time; they have problems with organization of their tasks, learning and performing new tasks is also difficult for them. However, if these children are doing something they enjoy, then they do not have trouble paying closer attention for a longer period of time (Wender, 2000).
The CEM-based approach to ADHD in children allows the characterization and evaluation of various aspects of the disorder. Children with ADHD can correct their errors if they are instructed to do so, thus they can monitor their behavior via some source of input. The general performance of children and adults with ADHD is poor when they have to be involved in a relatively slow event. At the same time, they do much better while participating in faster events. Sergeant (2005) writes, “event-related potentials paradigms have differentiated ADHD from ADHD comorbid with compulsive disorder and tic disorder” (p. 7).

For early childhood (10-14 months of age) hyperactivity, impulsivity and inattention would be considered normal behavior. Children with linear development will usually outgrow this stage. However, children with ADHD will continue to stay in this stage and not progress to the next phase of emotional development (Panzer & Vijoen, 2003). In this situation, parental reaction to child’s behavior becomes a significant factor. Ignorance towards child’s behavior followed by scolding incidents, without soothing him/her afterwards, could contribute to the development of defensive behavior, in the young and adult ADHD patient (Panzer & Vijoen).

Unique Characteristics of the Adult with ADHD

As mentioned previously, ADHD is a polygenic, neuropsychiatric disorder, which starts at an early age, and persists into adulthood in many patients. It affects approximately 4 % of the adult population in the United States (Newcorn & Weiss, 2006). In addition to symptoms of hyperactivity and impulsivity, adults with ADHD have their own unique symptoms; temper outbursts, lack of motivation, addictions, and
procrastination. About 90% of adults with ADHD will present with other comorbid disorders such as mood, anxiety, personality, and substance abuse disorders (Wender, 2000). Adults with ADHD have significantly higher probabilities of comorbid diagnoses of asthma, depression, oppositional disorder, anxiety disorder, and bipolar disorder compared to the control group (Secnik, et al., 2005).

There is functional impairment in children with ADHD, as well as in an adult with ADHD. In the workplace, adults with ADHD may appear as disorganized, messy, inaccurate, talkative, and procrastinating individuals. Adults with ADHD will often argue with authority figures, often be late and try to avoid boring tasks or paperwork (Wender, 2000). Adults with ADHD may have financial difficulties affecting their socioeconomic status, and they may live in low-income housing, and have poor driving records (multiple speeding citations, motor vehicle accidents and suspension of driver licenses). “Adults with ADHD are also more likely than the rest of the adult population to smoke and are less likely to quit smoking. They more often report psychological maladjustment, marital problems, and have a higher incidence of separation and divorce” (Wender, p. 159). These symptoms are probably caused by information processing deficiency, particularly by insufficient performance of cognitive mechanisms, which according to CEM, generate response output as well as the energetic mechanism effecting activation and effort (Sergeant, 2005). It has to be noted that ADHD does not necessarily prevent one from achieving significant achievements in life. There is a long list, which includes artists, scientists, political and business figures, of individuals who have became famous despite being affected by ADHD.
Parenting and sexual functioning also becomes affected by ADHD. Impulsive sexuality, inappropriate sexual behavior and sexual addiction are common problems among adult ADHD patients. Parents with ADHD may have a difficult time trying to set order and organization in the household. Their impulsivity and inconsistency in parenting create difficulties with setting rules and limits on their children. They have difficulties monitoring a child because of the child’s inability to focus, unless the child is quiet (Newcorn & Weiss, 2006). Per CEM, these deficiencies could be explained by management system deficits (Sergeant, 2005).

Because adults are usually active 16-18 hours of the day, their symptoms are most likely to become exacerbated in the evening. Unlike children with ADHD, adults with ADHD have more insight into their disorder, and most likely will be seeking care. They will be more eager to consent for treatment. On the other side, adults with ADHD are most likely to self-medicate with alcohol and other illicit drugs. It is been found that ADHD clearly precedes AOD (Alcohol and other drug) use and at least 20 to 50% of ADHD diagnose adults need to be enrolled in an AOD treatment program (Smith, Molina, & Pelham. 2002).

Currently, there is a wide variation of clinical and research approaches for identifying, diagnosing and treating ADHD among adults and children. This section will discuss issues mainly related to the differences between children and adult ADHD and adult ADHD specific problems. Several of these topics will be described in the succeeding paragraphs.

One of the specific problems of adult ADHD is the occurrence of substance
abuse. According to Schubiner (2005), ADHD patients have higher prevalence rates of substance use disorders (SUD) than the general population. Up to 20-30% of adults presenting with SUD also have ADHD symptoms, and among 20-40% of adults with ADHD, histories of SUD were reported. These facts reiterate the importance of careful diagnostic interviews with the purpose of precise identification of either or both of these disorders (Schubiner).

At this time, there are no sufficient data on the prevalence of adult ADHD in the workplace. One of the few studies evaluating ADHD patients in the workplace environment concluded that adult ADHD significantly decrements work performance. The results of the study were found to be consistent with clinical observations (Kesseler, et al., 2005).

Statistically, adults with ADHD will present with more significant emotional and psychological maladjustment, school and job performance problems, will have more speeding violations, and more frequently will be changing their employment then average. The multiple numbers of marriages is another common finding in an adult with ADHD (Barkley, et al., 1996; Biederman, et al., 2004).

**Instruments to Assess Adult ADHD**

Adult ADHD can be identified and assessed using several different rating scales. However, because ADHD in the adult population is difficult to diagnose, it is necessary to include a retrospective assessment of ADHD symptoms in childhood. This can be done by the utilization of a patient’s memory and the verbal report of a third party, such as a family member or a long time friend (Barkley & Murphy 2006). Current *DSM-IV-TR*
(2000) criteria for diagnosing adults with ADHD suggests including symptoms of severity and pervasiveness, functional impairment, quality of life and comorbidity of other disorders.

There are many different rating scales that can help health care providers to assess and evaluate adults that present with different symptoms of ADHD (Rosler et al., 2004). Rosler and colleagues made an attempt to review rating instruments that have been generally accepted by providers, separating the existing rating scales into two groups: self-reporting rating scales and observer report rating scales.

As a result of extensive literature review author of this report came to conclusion that self reporting rating scales, focusing mainly on DSM-IV-TR (2000) criteria, include the Conner’s Adult ADHD rating scale (CAARS), the Current Symptoms Scale by Barkley and Murphy (CSS), the Wender-Utah Rating Scale (WURS) and the Childhood Symptoms Scale by Barkley and Murphy (2006). These instruments utilize a retrospective assessment of the patient’s childhood ADHD symptoms (Rosler, et al., 2004). A comprehensive diagnostic interview, utilized for evaluating diagnostic criteria
and for the assessing different psychopathological syndrome scores, functional disability, induces of pervasiveness and quality information of comorbid disorders is considered to be an important element in assessing adult ADHD (Rosler et al.). The Brown ADD diagnostic form, the Barkley and Murphy (2000) Adult Interview (AI), and the Wender Reimherr Interview (WRI) (2000) are also identified as very useful instruments for diagnosing ADHD (Rosler et al.). This particular interview does not follow a diagnostic algorithm from the *DSM-IV-TR* (2000). It contains only items described from adult psychopathology and the origin of symptoms used for identifying adult ADHD, which was not designed/based on childhood ADHD (Rosler et al.).

For the purpose of this master’s report, the following rating scales will be discussed: Parents’ Rating Scale by Conners, (CPRS) developed in 1970, Wender Utah Rating Scale (WURS) by Wender, developed in 1995, Conners Adult ADHD Rating Scale (CAARS), developed in 2000, Barkley Screening Checklist for ADHD developed by Barkley and Murphy in 2006, Current Symptoms Scale –Self-report (CSS-SR) by Barkley and Murphy developed in 2006, and Driving Behavior Survey- Self-Report by Barkley and Murphy developed in 2003.

The CPRS is a comprehensive checklist for obtaining and evaluating parental reports. Initially, during the 1970s, the CPRS was utilized for assessing eating, sleeping, and temperamental problems. ADHD-related functionality was added later by including items to evaluate hyperactivity, impulsivity and inattention (Conners, Sitarenios, Parker, & Epstein, 2000). This rating scale has to be completed by parents or a very close relative of the patient, who is able to observe typical childhood behavior of the child.
There are several different versions of the CPRS in use. The short ADHD oriented version contains 10 questions. Rating is done by assigning numbers to each of the 10 questions where not at all= 0; just a little=1; pretty much=2; very much=3 (Wender, 2000). The highest score obtained can be 30. A score of 12 is considered to imply a high probability of ADHD in childhood. A score of 16 and higher means that the adult suffered from ADHD as a child (Wender, 2000).

According to a review of the literature, CPRS should be considered a reliable tool for distinguishing ADHD patients from healthy subjects. At the same time, it fails to reliably distinguish between ADHD and other psychiatric disorders. Reliability of this tool was found to be low to moderate (between 0.35 to 0.59) when the father and the mother are questioned (Gianarris, Golden, & Greene, 2001). This rating scale is brief and easy to administer. Since it fails to separate patients along diagnostic lines, it should not be used as a final diagnostic tool. CPRS based assessment should be followed by additional evaluations (Gianarris et al.).

The WURS is the most commonly used self–reporting rating scale for assessing adult ADHD. Originally, this rating scale included 61 items. The scale addresses issues like irrationality, poor coordination, avoidance of sport activities, being unpopular as a child etc. In scoring the WURS, each response carries a number: not at all or very slightly=0; mildly=1; moderately=2; quite a bit=3; very much=4. The average score for ADHD adults is 62; the average score for subjects without ADHD is 16 (Wender, 2000). This assessment scale appears to be a useful tool for the initial assessment of adults with possible ADHD symptoms. Wender suggests that adults who do not have ADHD, who
obtain a score between 34 and 41 very likely had ADHD in the childhood. Scores between 34 and 45 will cover 95 to 99% of adults who don’t have ADHD (Wender, 2000). A high score on this assessment tool does not exclude the possibility of later development or acquirement of other comorbid conditions or disorders, suggesting necessity of a full evaluation by a specialized professional.

Reliability of different versions of WURS was verified in multiple studies. Some versions of WURS produce high reliability with excellent internal consistency. (Retz-Junginger, Retz, Blocher, et al., 2003). Examination of validity of the WURS produced mixed results. WURS is a sensitive tool for the detection of ADHD. It correctly classifies 72.1% of cases among ADHD patients, while at the same time misclassifies 42.5% of non-ADHD cases. WURS is considered to be useful for recognizing ADHD in the adult population. At the same time, some research suggests that it can produce false-positive results as well (McCann, Scheele, Ward, & Roy-Byrne. 2004).

The CAARS, has been specifically designed for the assessment and diagnosis of ADHD in adults. CAARS is closely connected to the *DSM-IV-TR* (2000) definitions of ADHD. It can be administered in two formats: for self-reporting (CAARS-S), and observer reporting (CAARS-O). Short, long, and screening versions of the CAARS are available. This tool is used to identify and evaluate ADHD in patients 18 years old and older. It assesses both the severity and frequency of ADHD symptoms. CAARS addresses nine domains associated with ADHD in adults. As stated previously, the first three are considered to be the core symptoms of ADHD in children: inattention/concentration, impulsivity/self-control, and hyperactivity/restlessness. Adult
specific symptoms include difficulties with self–image, memory, interpersonal and learning problems, mood disturbances, and problems with executive function (prioritization of work, self-regulation) (Bowes, 2001). CAARS is highly sensitive and characterized by a high degree of specificity. It produces overall diagnostic efficiency up to 85% (Conners et al., 2000). CAARS produces false-positive diagnosis at rate of 13%, and false negative of 18% (Bowes, 2001).

The CSS-SR form is an assessment tool for the behavior evaluation of potential patients with ADHD, who have had ADHD symptoms during the past 6 months prior to the assessment. This self-reporting form has 3 sections with different types of questions. Questions in the first section assess inattentiveness and hyperactivity. This section is arranged according to the following principle: items pertinent to inattention are the odd-numbered items, and those pertinent to hyperactivity symptoms are even-numbered items. Those two symptoms are scored separately. If the score is six or more on inattention or hyperactivity items, it can be considered a clinically significant score and those patients are considered to be possibly experiencing ADHD either the inattentive or hyperactive type. If both of the scores are high, it is possible that this patient needs further evaluation by a professional and he/she is experiencing the combined subtype of ADHD. The second section is assessing an area where this inattentiveness and hyperactivity may be taking place: home, work, during social activities, when there is a task that needs to be accomplished. The third section is assessing irritability episodes. There is also one question about the onset of current symptoms, at what age does the patient remember those symptoms. The possible answers are: never or rarely = 0,
sometimes = 1, often = 2, and very often = 3. Different versions of CSS-SR demonstrated acceptable levels of internal consistency and good test-retest reliability. (Aycicegi, Dinn, & Harris. 2003).

Another self-reporting form is the Driving Behavior Survey. A study which was done by Weiss, Hechtman, Perlman, Hopkins, and Wener in 1979 concluded that individuals with ADHD hyperactive subtype were more likely to be involved in different types of traffic violations, especially traffic accidents. The damage to their vehicles is usually more extensive than the damage to vehicles of non-hyperactive peers. The Driving Behavior Survey provides a means of accessing clients’ self-reports of their driving history and negative consequences they have experienced (Barkley, & Murphy, 2006). This scale contains 26 items that assess the driving behavior and skills of a person with ADHD. Information on braking and accelerating habits, speed limit abeyance, car stereo volume, proper usage of mirrors, safe distance considerations (Barkley, & Murphy, 2006). The items in this survey are rated on a 1-4 Likert scale (not at all, sometimes, often, and very often). The very last item of this survey gives an opportunity to the assessed individual to give their global judgment of his/her driving performance relative to the average driving population. A score of 76 and lower can be used as a rough guideline for determining significant driving risk (Barkley, & Murphy, 2006).

Summary

No specific theory explains the psychological, physiological, and biochemical processes involved in the development of ADHD. The absence of a commonly accepted theory complicates diagnosing adults with ADHD. Comorbidity, difficulties obtaining
childhood recollections and earlier records, absence of definitive biochemical or
neuropsychological tests, are some of the issues complicating diagnosis of adult ADHD.
The diagnosis and evaluation of ADHD is made utilizing symptom assessment scales and

For the purpose of this Master’s report, the CSS-SR form and the Driving
Behavior Survey will be used for the development of a tool for primary care provider’s
use in screening and referring individuals at high risk for ADHD.
Third chapter will discuss the main component of the educational material (booklet) developed as a result of this Master’s project. Description of components of the booklet as well as details associated with implementation of this project will be provided. According to the scientific data, ADHD affects up to 50% of adults who had it in childhood (Searight, Burke, & Rottne, 2000). A large portion of these cases remains untreated. The consequences of non-treatment can be very serious (substance abuse, delinquency, major traffic accidents, injuries). The costs associated with treating these consequences will involve utilization of multiple health care resources to a great extent (Wender, 2000). As mentioned previously, the vast majority of primary care providers are inexperienced in the diagnosis of adults with ADHD. For example, McCormick (2004), while recognizing that diagnosis of adult ADHD is a “difficult and formidable” task, reports that just 5.5% of adults diagnosed with ADHD as children retained symptoms of the disease (p.823). Results of McCormick’s study, obtained from the sample he selected from his general practice, contradict more then 50 studies conducted in university based clinics. These studies reported that ADHD remained a problem for 39% of the adults. It has to be mentioned that McCormick’s results are consistent with results from a dozen other studies, which found that ADHD persisted in adulthood only in 4 to 8% of children, who were diagnosed with this disorder. All these studies were conducted more then 10 years ago, some before DSM-IV’s release (Hill, Schroener, 1996). It is interesting that Mannuzza and Klein (1998), cited by McCormick, who
followed a sample of 226 children from an average age of 8 to an average age of 25, found that 37% of ADHD patients continued to present symptoms of the disease into adolescence, and only 4-7% into adulthood. At the same time, children with ADHD were about twice as likely to be arrested, in adolescence or early adulthood, compared to the control group. Conviction rates among former ADHD children was at 28% versus 11% for the control group. All of the arrested later in life developed Anti-Social Personality Disorder or Conduct Disorder (Mannuzza & Klein, 1998). However, the research subjects in the Mannuzza study were diagnosed utilizing DSM-II criteria. It appears that McCormick’s and similar to his conclusions regarding the frequency of detection of ADHD in adults in primary care and inconsistencies in numbers regarding the prevalence of ADHD in adults could be attributed to variations in diagnostic criteria, and limitations of certain research models and techniques. For this Master’s project, the author will develop an educational booklet, which will provide a quick reference for primary care providers in screening for ADHD in at risk adults. The booklet will contain information on signs and symptoms of ADHD in adults, and a basic assessment tool of the patient. These resources will provide data for the referral of the patient to a mental health care professional as appropriate. This booklet (see appendix A) contains information on the following topics, prevalence of ADHD in adults, signs and symptoms of adult ADHD, and recommendations for further assessment and contact information.

The self-assessment questionnaire will be reviewed and scored by a primary health care provider with the goal of determining a patient’s ADHD symptoms. The Self-assessment questionnaire will include questions addressing the signs and symptoms of
ADHD mentioned above. This questionnaire needs to be relatively short and focused on the major aspects of hyperactivity, impulsivity, and inattention. See appendix A for the sample questionnaire. (Barkley and Murphy, 2006).

The practical implementation of this project should take approximately 10 to 15 minutes. The self-assessment questionnaire could be administered to patients by the PHCP if the patient manifests the appearance of ADHD symptoms. The questionnaire will be accompanied by a booklet with a brief description of the disorder, possible comorbidity, and an explanation of possible treatment options.

Components of the Booklet

1. Prevalence of ADHD in adults: According to the World Federation of Mental Health (WFMH) “Up to 60% of children with ADHD continue to have significant symptoms as adults” (2004, p. 453). The research conducted by Faraone (2006), concluded that “ADHD symptoms persist into adulthood for up to 65% of patients, even though they may not meet the full criteria for ADHD” (p. 160).

2. Signs and symptoms specific to adults with ADHD: a) There is a functional impairment in adults with ADHD. In the workplace, adults with ADHD would more likely manifest symptoms of disorganization, being late for work and for important meetings, disregarding professional subordinancy and procrastination on completing a job. Their writing may be untidy; they would avoid doing “boring” tasks or paperwork, will spend most of the work time talking to their co-workers or spending a lot of time on the phone, or will show disturbing behavior in meetings (Newcorn, 2006).

b) Poor financial management. The inability to manage their finances could affect the
socio-economic status of patients with ADHD.

c) Poor driving record. Their hyperactivity and impulsivity could have some influence on their ability to obey rules. It will have an effect on their driving records (multiple speeding citations, motor vehicle accidents, suspension of driver licenses).

d) Temper outburst, lack of motivation, addictions, and procrastination.

3. Contact Information: Please contact insurance provider for further information on the psychiatric mental health providers incorporated in a particular insurance plan.

   In case of crisis please contact: Southern Arizona Mental Health Corporation (crisis center, walk-in-basis), 2502 N Dodge Blvd #190, phone # (520) 622-6000.

   Self-Assessment Questionnaire Components

   Patients will complete the questionnaire by choosing responses scored 0 through 3. The approach to the scoring of this questionnaire will be based on Score Completed to Adult Norms techniques. In this approach, a primary care provider can add up the total score the individual achieves, sum all items answered 1, 2, and 3. However, special attention will need to be paid to the items answered 2 and 3. A score can be considered as clinically significant if it is higher then 24, and this client needs to be referred to a psychiatric mental health professional for further evaluation. If the score is 18 or more, then this client needs to be monitored and reassessed in 6 months to 1 year by a primary care provider, no clinical significance had been found (Barkley, 2006).

   Recommendations for Further Assessment

   Further assessment needs to be implemented if a client scores higher then 24 during the self-evaluation test, or if they exhibit increasing life interfering symptoms of
impulsivity, hyperactivity and inattention. During this assessment, the degree of the patient’s life performance incapacitation will be evaluated. It will examine if the patient is capable of performing activities of daily living (ADL), work related activities, family related responsibilities etc. If the client does not experience extreme interference based on ADHD symptoms with his/her life performance then he/she could be recommended to be engaged in a further evaluation by a psychiatric health care provider in a time appropriate manner convenient for this particular client. However, if the patient experiences an extreme life performance incapacitation based on ADHD symptoms, he or she needs to be referred to a crisis center for immediate evaluation. The author of this paper recommends to expedite the involvement/interference of a trained psychiatric health care professional if a client with possible ADHD diagnosis, is involved in the provision of care for his/her children. Research shows (Barkley, 1996; Barkley, 2004; Bowes, 2001; Richardson, 1997; Wender, 2000) that treatment for ADHD produces improvements in ADHD symptoms and considerable positive changes in patients lifestyle.

Implementation

An evaluation and pilot testing of the questionnaire, developed as a product of this project, will be conducted by distributing this questionnaire to at least 30 psychiatric mental health providers, such as to psychiatric mental health nurse practitioners (PMHNP) and psychiatrists. Additionally, a short assessment tool has to be developed and distributed among PMHNPs and psychiatrists, participating in the pilot testing, for obtaining their feedback. Since this project was developed by a PMHNP student, the
most realistic way to introduce it for evaluation could be to conduct a presentation during the PMHNP monthly meeting. After this presentation, participating PMHNPs will fill out a feedback questionnaire with their suggestions and possible recommendations for necessary adjustments. This feedback will be carefully analyzed and adjustments will be applied to the original assessment tool, assuming that the implementation of these adjustments will provide better adherence to existing guidelines for the assessment and treatment of patients with ADHD. The initial validation of booklet’s components took place by introducing it to Ann Maier, PMHNP, who is an expert in the field of diagnostics and treatment of ADHD. After reviewing the booklet and the questionnaire Ann Maier provided positive feedback in regards to the content of the booklet.

Extensive planning should take place prior to trial implementation of this assessment tool. Participants, such as the family nurse practitioners, adult nurse practitioners and primary care physicians, known as early adopters and implementers of new methods, should be selected for the purpose of gaining support and to address potential barriers. These PCPs will have to attend a training session to ensure accurate interpretation of the score and the professional handling of possible questions from the assessed patients. Funding for training will be obtained from pharmaceutical companies producing anti ADHD medications. Brochures will be placed in primary care provider offices with their permission.
CHAPTER 4

Introduction

The final chapter of this master report will discuss the PCP’s satisfaction with the educational material and assessment tool. Also, this chapter will include a review of the strengths and limitations of this project’s final results, plans for evaluating the tool, and appraisal of the significance of this assessment tool for the identification of ADHD symptoms.

The intent of this project was the development of a basic educational brochure, which would assist primary care providers in recognizing ADHD symptoms in adults. This brochure will include an assessment tool, which should assist primary care providers to successfully recognize possible symptoms of ADHD and appropriately refer patients, who have a high probability of being affected by ADHD, to a mental health provider. As it was mentioned in the first chapter, up to 4.4% of Americans suffer from this disorder (Adler et al., 2004). From the review of literature, it is suggested, that proper diagnosis and treatment of this disorder could significantly help individuals affected by ADHD to avoid many legal, relationship and social problems. Appropriate referral remains a keystone in attaining the goal of improving the diagnosis and treatment of adult ADHD. Currently, the vast majority of adult ADHD cases remain undiagnosed, which leads to “increased healthcare cost, higher divorce rates, unemployment and motor vehicle accidents” (NYU Medical Center, 2004, p1). The situation will not improve until primary care specialists become more proficient in recognizing patients who suffer from ADHD.
Relationship to Theoretical Framework

The Cognitive-energetic theoretical model (CEM) was chosen to serve as the theoretical base for this project because, according to the majority of scholars involved in ADHD research, this model provides the most comprehensive description of the disorder. CEM concentrates on the evaluation of information processing deficiencies caused by ADHD. CEM approaches the information processing brain activities as a product of three discrete levels: computational mechanisms of attention, state factors, and management/executive function. The interplay of these three levels can determine the overall efficiency of this model’s information processing system (Sergeant, 2005).

CEM considers EF (executive function) the most important mechanism responsible for the coordination of WM (working memory), response inhibition, and response conflict, affected by ADHD. This theory holds (EF) largely responsible for a human’s efforts in sustaining attention, response management and ensuring everyday functionality (Sergeant, 2005). The questionnaire’s content is selected in such a way that it tests a patient’s performance in completing these activities.

Comparison of symptoms (Table 2.1) effecting adults and children shows some differences and some similarities. In fact, it appears that adults have more developed versions of the same problems. The recognition and treatment of adult ADHD can improve a patient’s understanding of his /her personal situation, and that could dramatically improve the patient’s quality of life (Wender, 2000).
Significance of this Project

Modern health care is comprised of a multitude of disciplines. It is virtually impossible for a PCP to be an expert in all of them. In some cases, it is incredibly difficult to recognize and correctly address symptoms of certain disorders even for a specialist. The educational material with the preliminary assessment tool should help a PCP in the detection of ADHD symptoms and therefore, allow them to feel more comfortable referring patents to a psychiatric mental health provider when appropriate (NYU Medical Center, 2004).

As it was mentioned before, the whole concept of adult ADHD is still considered to be under researched while about 60% of affected population is still underdiagnosed and under treated, creating a very problematic component in the lives of patients who suffer from this disease (Adler & Weiss, 2004). Most PCPs are lacking the knowledge and tools necessary for successfully detecting and treating adult ADHD. The educational material, developed as part of this project can also help provide additional education to patients currently suffering from this disorder.

Evaluation Plan of Educational Material and Assessment Tool

Prior to offering this assessment tool to a PCP, it needs to be evaluated by psychiatric mental health providers. As mentioned in chapter 3, this could be accomplished by presenting the assessment tool to members of the psychiatric mental health care community, and then obtaining their opinions and constructive feedback, via a specifically developed simple questionnaire. Only after mental health care specialists will evaluate the assessment tool can it be presented to PCPs. The evaluation conducted by
PCPs will report on two components. First, the proportional component will reflect on increase (or decrease) in PCP referring patients to PMHCPs. The second, the differential component will monitor the quality of these referrals (if initial PCP diagnosis was correct). Semi-annual reporting on the number of patients referred to PMHCPs, such as participating PMHNPs and psychiatrists, and the follow up visits with PCPs will provide information about the feasibility of this project.

Future Studies and Recommendations

This educational material and assessment tool, could be distributed among PCPs and also could serve as a basis for educational sessions directed toward improving PCP skills in the field of psychiatric health care. At the same time the assessment tool and educational materials will be revised based on outcomes of the pilot testing. The information can also be expanded to a more detailed handout, which will include DSM-IV-TR (2000) criteria for diagnosing this disorder to provide PCPs with better understanding of the disorder. Additionally, this educational material could also be useful to patients suffering from those symptoms. Patient feedback could also play an important role in the fine tuning of the assessment tool, because of their unique positions of being the primary source of information.

Strengths and Limitations

The most important strength of this project is in addressing an underdiagnosed and undertreated major psychiatric problem, which has a significant impact on society. The project’s foundation on the advanced theoretical model (CEM) in conjunction with the most up-to-date practical manual (DSM-IV-TR. 2000) reassures its conformance with
the modern health care system and scientific research. This project could serve as one of the steps for achieving significant progress, by bringing attention to a serious health care problem. An additional strength of this project is the simplicity of its implementation, and the ability to receive a multidimensional assessment from health care specialists as well as from patients suffering from the disorder.

Obvious economic advantages should be considered as another significant factor adding to the strength of the project as a whole. Fairly low costs, associated with the implementation of some or all provisions mentioned in this project, could be easily offset by multiple financial savings: cost of health care related to this disorder will be decreased (less alcohol abuse related treatment, less drug abuse); costs related to motor vehicle accidents which could be prevented, if appropriate treatment of patient/driver is implemented; savings on state and federal levels associated with potential decrease in number of unemployed people among ADHD affected population. Lastly, with increased attention to adult ADHD, patients will be more comfortable asking questions related to this disorder.

The main limitation of this project is related to the lack of contiguous and comprehensive research, which could provide solid support to all statements and conclusions. For example, the author had to make several assumptions that similar ADHD symptoms in adults and children have the same set of underlying physiological conditions. Reliability and validity of the screening tool remain questionable until the pilot testing is completed. Also, relying on psychiatric patients as evaluators could be
unreliable because there is a stigma related to any mental health disorder. Patients are ashamed if they are labeled as ADHD.

The project also fails to take into account comorbid conditions, different life situations and potential cultural differences of potential patents. In addition, the administration of the assessment tool could be a time consuming procedure and PCPs will not have enough time to spend on it.

Summary

An educational booklet and assessment tool for PCPs for determination of adults at risk for ADHD were developed for this project. The subject of this report is a very important issue, considering the large number of adults suffering from this disorder, who are under-diagnosed and untreated. This reality could be related to a knowledge deficit of the PCPs about this disorder. In this chapter, the plan for evaluating this project has also been presented. A sample questionnaire will be provided to psychiatric mental health providers for evaluating the accuracy and feasibility of the assessment tool presented in this project. Recommendation for future studies, strengths and limitations were also addressed in this chapter.
Appendix A

Adult Self-Reporting Questionnaire for ADHD screening

Name____________________________________________________
Age________                                  Date_________________________

Please circle the appropriate number next to each item, which would best describe your behavior in the past 6 months.

<table>
<thead>
<tr>
<th>Items</th>
<th>Rarely</th>
<th>Occasionally</th>
<th>Often</th>
<th>All the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How often do you make careless mistakes in your work</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. How often do you experience difficulty keeping your attention on a repetitive task?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. How often do you have difficulties concentrating on a conversation?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4. How often do you have trouble following instructions and failing to finish your work?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5. Are you distracted by noises around you?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6. Do you have trouble remembering your appointments and meetings?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7. Do you have trouble organizing tasks and/or activities?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8. Do you talk fast and excessively?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9. How often do you lose key/things?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
10. Do you have difficulties waiting for your turn in a situation when turn taking is required?

11. Do you give an answer to a question before a question is completed?

12. Do you ever feel like you are “on the go” or “run by a motor”?

13. How often do you feel restless?

14. Do you get up and leave your seat in situations where sitting is expected?

15. Do you have trouble engaging in leisure activities and/or doing fun things quietly?

16. Do you have difficulties relaxing and sitting quietly?

17. Do you avoid/dislike/are reluctant to engage in work that needs your sustained mental effort?

18. How often do you interrupt and/or intrude on others?

Total score ________

(Barkley & Murphy, 2006; Conners et al, 2000)
ADULT ATTENTION DEFICIT HYPERACTIVITY DISORDER

MANY FAMOUS PEOPLE LIVED WITH IT AND WERE VERY SUCCESSFUL
Background: ADHD (Attention Deficit Hyperactivity Disorder) is a very common psychiatric condition in children, which effects about 5% of the children’s population. This disorder used to be called by different names such as “Fidgety Phil”, minimum brain dysfunction, hyperactivity, attention-deficit disorder, and attention-deficit hyperactivity disorder. Psychiatric literature dates the most recent discovery of this disorder in the late 1800’s and early 1900’s and credits it to Dr. Still, a British physician, who recognized and specified signs and symptoms of ADHD in children. According to the World Federation of Mental Health (WFMH), “Up to 60% of children with ADHD continue to have significant symptoms as adults”.

Etiology: It is very likely that ADHD is transmitted genetically. The comorbidity of ADHD with other disorders (oppositional defiant disorder and conduct disorder) also is very common. Comorbidity significantly complicates the diagnosis of this disorder.

Symptoms of adult ADHD

Difficulties sustaining attention to reading or paperwork; Inability to focus and forgetfulness; Poor concentration; Poor time management skills; General disorganization; Difficulties completing tasks; Inner restlessness; Fidgeting while seated; Self-selecting active jobs; Excessive talking; Feeling overwhelmed; Driving too fast, with multiple traffic accidents; Frequent Impulsive job changes; Irritability or issues with anger management.

If four or more of listed above symptoms are present then please proceed with the questionnaire.

Contact information. In case of crisis please contact: Southern Arizona Mental Health Corporation (crisis center, walk-in-basis) 2502 N Dodge Blvd #190 phone # (520) 622-6000.
Adult Self-Reporting Questionnaire for ADHD screening

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Age________                                  Date_________________________

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<td>5. Are you distracted by noises around you?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6. Do you have trouble remembering your appointments and meetings?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7. Do you have trouble organizing tasks and/or activities?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8. Do you talk fast and excessively?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9. How often do you lose key/things?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10. Do you have difficulties waiting for your turn in a situation when turn taking is required?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11. Do you give an answer to a question before a question is completed?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12. Do you ever feel like you are “on the go” or “run by a motor”?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13. How often do you feel restless?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>14. Do you get up and leave your seat in situations where sitting is expected?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>15. Do you have trouble engaging in leisure activities and/or doing fun things quietly?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>16. Do you have difficulties relaxing and sitting quietly?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17. Do you avoid/dislike/are reluctant to engage in work that needs your sustained mental effort?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>18. How often do you interrupt and/or intrude on others?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Total score ____

PLEASE, HAND IN COMPLETED QUESTIONNAIRE TO YOUR PRIMARY CARE PROVIDER

(Barkley & Murphy, 2006; Conners et al., 2000)
Score explanation. Patients will complete the questionnaire by choosing answers graded 0 through 3. A primary care provider can add up the total score the individual achieves, sum all items answered 1, 2, and 3. However, special attention will need to be paid to the items answered 2 and 3. The score can be considered clinically significant if it is higher than 24, and this client needs to be referred to a psychiatric mental health professional for further evaluation. If the score is 18 or higher, then this client needs to be monitored by PCP and reassessed with the same questionnaire in 6 months to 1 year by a primary care provider, no clinical significance had been found.
REFERENCES


Colorado Spring: Pinon Press.


