A Parenting Handbook for Children with ADHD: For Those Seeking Alternative Treatments and Interventions to Implement at Home and at School

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DEDICATION

I would like to dedicate this project to those around me who have been extremely supportive through this process. I could not have dedicated the time and effort to this project if it wasn’t for my close family and friends. I would most of all like to dedicate this project to my one and only daughter Lillian. She has been my biggest motivator throughout this whole process and program.
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Abstract

A Parenting Handbook for Children with ADHD: For Those Seeking Alternative Treatments and Interventions to Implement at Home and at School

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The purpose of this project was to create a handbook for parents, family, and educators on information regarding alternative treatments for Attention Deficit Hyperactivity Disorder (ADHD). Information provided in this handbook includes what characterizes children diagnosed with ADHD, symptoms, what it looks like in the classroom, alternative treatments aside from medication, and evidence based behavioral interventions.
Chapter One

Introduction

When first embarking on my practicum experience for school psychology, I was not prepared for the many ADHD students I would be working with. The majority of the cases I have worked on both in practicum and in internship have been students qualifying under Other Health Impairment (OHI) due to ADHD diagnosis or ADHD like characteristics. Working with these students allowed me to collaborate with their families and become aware of the difficulties these families face when their child’s attention impacts their educational performance. Families who had their children on medication would often express that it was something they did not want to continue for a long period of time and at the same time feared their children’s symptoms coming back. For those parents who did not have their children on medication, I would observe that they would often rely on the school to help deal with their child’s attentional difficulties and hyperactivity.

When speaking with and dealing with families of these children, I noticed that parents often did not know where to seek resources for their children’s ADHD and would often be given the only option of medication by their pediatricians. Sitting through the many IEP’s of these children and qualifying them under OHI brought to my attention that we as a school were only addressing the child’s difficulties in the school, however we were not sending the parent home with any resources. As my professors have long stated, it is both home and school collaboration that create the most success in a child’s academic career. It is my intention to bring awareness to parents and provide them with
resources through this handbook in order to strengthen the home and school bond, but also give them the competence to help out their children at home.

**Statement of the Problem**

The purpose of this project is to create a handbook for parents seeking alternative treatments for ADHD Children. This handbook is aimed at parents who are looking to provide their children with ADHD treatments and interventions aside from medication. ADHD is considered a neurological/behavioral disorder that is caused by a range of biological, psychological, and social conditions. The disorder manifests symptoms of impulsivity, hyperactivity, and inattention in children. Parents and teachers often describe that their children either cannot sit still, blurt out answers, space out, are always disorganized, are constantly moving around, fidgeting, and are easily distracted. Symptoms are easier to detect in boys then in girls. Boys externalize their behavior versus girls internalize.

Parents and teachers often begin to notice that something is wrong with the child when they begin to have difficulties in learning and also when their ADHD symptoms impact them across different environments such as school, home, and in the community. Parents who get their children evaluated by a doctor may be offered medication as their first line of treatment. Several parents with whom I have worked with have demonstrated concerns with the possible side effects of medication and with the child becoming dependent on the medication, as well as what will happen after the discontinuation of medication. This handbook will guide parents to teach their children the skills needed to deal with ADHD in the classroom and at home.
The topic of introducing medicine to manage a child’s behavior can be quite sensitive for some parents, more so when the child is young. With the increasing rise of children being diagnosed with ADHD has come the rise and availability of evidence based alternative treatments for children. Several of the alternative treatments discussed include: Dietary management/ supplementation, Biofeedback, Behavior therapy, Parent Management Training, Working Memory Training, and Physical Exercise. The ones outline in my handbook include: Dietary management, vitamin supplementation, zinc and fatty acid supplementation, and Neurofeedback training. Alternative treatments have been beneficial for children that demonstrate mild to moderate symptoms. However children benefit the most when a multi-modal/combination form of treatment is used.

Medication may often be the first intervention parents try with their children when they are diagnosed with ADHD. Medication can offer a temporary solution, however the skills needed to deal with both hyperactivity and inattention must still be taught. Stimulants that are often prescribed to young children and adolescents come with severe side effects that have often been noted as parents “as completely changing their child to a different person.” Children on medication for ADHD rarely remain on it for no more than a year and gains rarely are maintained after getting off the medication. Children who benefit the most from medication treatment are those who display sever symptoms, however it is best practice for parents to consider combination of medication and for example behavior modification.

Alternative treatments that can provide long-term benefits need to be promoted to both parents and teachers of children diagnosed with ADHD. Children who are provided
with treatments that both target environmental stimulation and increase neural and
cognitive functioning gain the skills needed to be sustained over the long term.
Treatments such as Neuro-feedback or working memory training offer cognitive training
to promote neural activity in children. It is ideal that parents not only use one form of
treatment to deal with their child’s symptoms, the best type of treatment is one that deals
with core underlying issue and not addresses only the symptoms.

**Purpose of the Project**

The purpose of this project is to provide a handbook for parents to assist them
with managing their child’s ADHD behaviors as well as learn how to promote academic
success. I want to offer parents several interventions to try at home and in collaboration
with their teachers before they resort to medication. Additionally, I want parents to know
the importance of early intervention in young children. It is crucial for parents to develop
the skills that their children will need to independently succeed in school early on.

ADHD has been known to have profound effects on children later on life when symptoms
are not treated from early age. If not addressed early individuals may exhibit significant
behavior problems, defiance, antisocial acts, and substance abuse later on in life. Both my
handbook and in-service presentation highlight the importance of early identification and
intervention.
Terminology

**Attention Deficit Hyperactivity Disorder:** a neuro-developmental disorder condition characterized by developmentally inappropriate levels of inattention, and/or impulsivity and hyperactivity. Symptoms significantly impair an individual’s functioning across multiple domains and environments.

**Diagnostic Statistical Manual of Mental Disorders:** it is the standard classification manual used by professionals in the United States to diagnose mental disorders in the mental health field.

**Methylphenidate:** used to treat ADHD and Narcolepsy and is considered a central nervous system stimulant. It increases alertness and attention and combats fatigue.

**Treatment:** medical or psychiatric care given to a patient for an illness, disorder, or injury.

**Executive Functioning:** a set of processes that involve one managing skills including planning, organization, memory, time management, and flexible thinking.

**Working Memory:** involved in temporarily storing and managing information necessary to carry out complex cognitive tasks like learning, reasoning, and comprehension.
Organization of the Project

The following sections of this project include:

Chapter two outlines the most up to date literature on ADHD, implications of medication on behavior and development, evidence based alternative treatments, and recommendations to incorporate interventions both at home and school. Chapter 3 identifies what the project is, how it will be created into a PDF handbook in order for parents to download, and how educators can benefit from the handbook. Chapter four concludes my project as well as state what further research is needed, and results of my project evaluation.
Chapter Two

Review of the Literature

This chapter will discuss what Attention Deficit Hyperactivity Disorder is defined as, including information on inattentive, hyperactive, and combined type. Characteristics of the ADHD child will be outlined as well as how to go about assessing the ADHD child. It will further discuss common medications prescribed to children and its implications on behavior and development. Evidenced based alternative treatments will be outlined and information on how to implement them both at home and school.

What is Attention Deficit Hyperactivity Disorder?

According to the Centers for Disease Control and Prevention, in 2011 approximately 11% of children ages 4 to 17 years old have been diagnosed with ADHD (CDC, 2015). Diagnosis of ADHD in children has continued to increase at an average of 5% per year from 2003 to 2011. Boys (13.2%) are more likely to be diagnosed with ADHD then girls (5.6%). Children are typically diagnosed with ADHD around the age of seven, however parents who reported their children with severe symptoms of ADHD were diagnosed at an earlier age. ADHD has evolved from when it was first identified as the “hyperkinetic child” in the 1968 Diagnostic and Statistical Manual of Mental Disorders (DSM-II) to what it is known now as attention deficit hyperactivity disorder (Brown & Gerbarg, 2012). The American Psychiatric Association defines it as a disordered characterized by a persistent pattern of inattention and/or hyperactivity/impulsivity that manifests in educational, occupational, or social settings. Difficulties with attention include making careless mistakes, failing to complete tasks, problems staying organized and keeping track of things, and becoming easily distracted.
Problems with hyperactivity include frequent fidgetiness, running or climbing during instances that are not appropriate, excessive talking, and being constantly on the go. Impulsivity presents as impatience, difficulties in waiting for one’s turn, blurtting out answers, and frequent interrupting (Rabiner, 2006).

For an individual to be diagnosed with ADHD, they must meet the following criteria based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-V): six (or more) of the following symptoms associated with inattention must have persisted for at least 6 months and is inconsistent with developmental level. These symptoms must impact the child’s social, academic, and occupational activities. As outlined in the DSM-V, characteristics of the inattentive type include: fails to pay attention to details, has difficulty sustaining attention on tasks, has difficulty organizing tasks and activities, and is easily distracted by external stimuli (APA, 2013, p.59). For the hyperactive type, the child must have displayed the following symptoms for a period of six or more months that is inconsistent with developmental level: often squirms or fidgets with hands or feet, has difficulty playing quiet, talks excessively, and often leaves their seat in the classroom or other settings (APA, 2013, p.60). The impulsive type includes characteristics such as: often blurts out answers, has difficulty waiting turn, and often interrupts or intrudes on others. A child can be diagnosed with predominantly as the inattentive type, hyperactive type, or with a combination of both (APA, 2013, p.60)

**Characteristics of children with ADHD**

ADHD symptoms in a child can vary considerably depending on the time of day and the environment the child is in. ADHD symptoms in a child can fluctuate dramatically within the same setting. There are three main symptoms characteristic of the
ADHD child; these include inattention, hyperactivity, and impulsivity. Symptoms must be severe enough to cause impairments in two or more settings such as home and school, as well as impact the child’s social, emotional, and academic performance (Parker, 2005, p.7). Difficulties with attention span tend to be one of the symptoms that cause the most problems in school for children. This is primarily due to them being unable to attend long enough to complete classroom assignments, becoming easily distracted by things in their environment, and having trouble following teachers directions. The ADHD child who suffers from deficits in inattention is still able to attend to things that he/she finds interesting, which can include watching television and playing video games.

The child that suffers from impulse control has challenges in regulating their emotions and behavior. They often act quickly without giving thoughtful consideration to the consequences of their behavior. The impulsive child can often make careless mistakes, skip over classroom directions for assignments, blurt out answers, and leave homework assignments everywhere (Parker, 2005, p.8). Impulsive and hyperactive children find themselves with little to no friendships, as they tend to get on others nerves without realizing when enough is enough. The hyperactive child can be described as a speeding bullet that never stops. Hyperactivity tends to be worse in younger children than in older children. By elementary school, older children change their hyperactivity level from constantly running on the go to restless. This can include: fidgeting, squirming in their chair, playing with pencils or toys all the time, talking to peers, getting up out of their seat, and walking around the room. In girls, hyperactivity behavior often manifests as excessive talking. Once the child reaches high school, hyperactivity symptoms slow down and often come off subtler in adolescent children. In the classroom, the hyperactive
adolescent child might be observed wagging their feet, tapping a pencil, or excessive talking (Parker, 2005, p.8).

According to Langber, Dvorsky, & Evans (2013), executive functioning skills of children with ADHD have been hypothesized to be one of the major underlying functional impairments these children suffer. Brain Imaging studies have supported the executive functioning in ADHD hypothesis, which purports that children, adolescents, and adults with ADHD tend to suffer from deficits in executive functioning skills (Valera, Faraone, Murray, & Seidman, 2007). Two core executive functioning skill deficits that are seen often in children with ADHD are working memory and inhibitory control (Brocki, Randall, Bohlin, & Kerns, 2008). Working memory is often used in the control of attention and is a known predictor of academic success. One study demonstrated that cognitive working memory training could result in reductions in off-task behavior during classroom work (Green et. al., 2012). Students with ADHD in particular who have poor working demonstrate more difficulties when having to remember visual information like graphs or images.

Children with ADHD are four times more likely to experience working memory problems as compared to their peers without attention problems (Holmes, Hilton, Place, Alloway, Elliott, & Gathercole 2014). Children with working memory deficits have a difficult time following simple tasks in the classroom, following instructions, and remembering steps to assignments. Teachers report that children with working memory deficits often present as inattentive and have short attention spans. Additionally teachers rate children with poor working memory as having challenges in monitoring their work, controlling impulsive responses, and planning and organization.
ADHD tends to be more commonly identified by teachers in school rather than by parents or physicians (Sax & Kautz, 2003). There is evidence for early ADHD causal factors that could be identified in children from as young as 15 months of age. These include: temperament and regulatory disturbances, increased irritability, crying, hyperactivity, and sleep problems (Bernard, MacDonald, & Pennington, 2013). Early accurate screening tools for preschool age children are scarce. The validity and utility of preschool measures used to identify attention problems are limited. Criteria such as “makes careless mistakes” is difficult to measure in preschoolers who are not necessarily engaged in activities that require sustained focus. Moreover, girls and boys with ADHD have different prevalence rates and different comorbidity patterns. The presentation of ADHD and its symptoms change throughout a child’s development; furthermore changing demands such as beginning school impacts the symptoms. This raises some concerns as to whether it is valid to apply a single list of symptoms to all ages (Curchack-Lichtin, Chacko, & Halperin, 2014). Hyperactivity is a symptom that is commonly seen during the preschool age and tends to diminish during later childhood. Hyperactivity may present as a normative behavior in young children, preschoolers and toddlers are known to be more active than older children.

Clinicians often have trouble diagnosing young children with ADHD primarily due to the fact that it is difficult to interpret the symptoms at a young age. Some clinicians chose not to diagnose children before the age of six, while others chose a wait-and-see approach when it comes to ADHD (Curchack-Lichtin et. al., 2014). Certain symptoms, such as “avoids tasks requiring sustained mental effort” cannot be gauged in young children who are not yet engaging in material that is detail oriented. Young
children do not yet handle things that require a large amount of responsibility such as, organizing toys, keeping track of belongings, and remembering day-to-day obligations. When considering preschool children for ADHD, symptoms should be determined as to whether or not they are developmentally appropriate. Early intervention is critical for this population of children therefore early identification of ADHD is of utmost importance.

**ADHD in Girls:**

It is important to note that most studies conducted on ADHD/ADD are primarily based on boys. Very few girls are usually included in the sample size, so as a result the majority of the literature on ADHD/ADD is based on male subjects (Biederman et. al., 1999). Girls with ADHD are more likely to be diagnosed with co-morbid disorders like oppositional defiant disorder, mood disorders, anxiety disorders, and substance abuse disorders as compared to girls without ADHD/ADD. However, girls with ADHD are less likely to be diagnosed with a comorbid disorder then boys with ADHD (Biederman et. al., 1999). Girls with ADHD/ADD have shown to score lower on tests of intellectual functioning and academic achievement then girls without ADHD/ADD. Girls with ADHD/ADD are sixteen times more likely to be retained a grade in school, ten times more likely to be in a special class, and two and half times more likely to have a learning disability (Biederman et. al., 1999). The parents of girls with ADHD/ADD reported higher levels of conflict with their daughters and report their family life as less cohesive. Both women and girls with ADHD present with more internalizing symptoms than externalizing symptoms. ADHD/ADD Symptoms may often be overlooked by doctors or knowledgeable informants, which in turn leads girls to less likely be diagnosed and to receive treatment (Quinn & Madhoo, 2014).
Women are typically older than men when diagnosed with ADHD, this is due to the fact that females often develop better coping strategies to mask the impact of their ADHD symptoms. Missed diagnosis is more likely to occur when girls present with either anxiety or depression alongside ADHD symptoms (Quinn & Madhoo, 2014). Teachers in the classroom may often dismiss ADHD symptoms in girls and referring them for an evaluation. Teachers often tend to compare them to their male peers who display more obvious signs. Delays in recognizing ADHD symptoms in girls often leads to them having more severe symptoms by the time they are diagnosed (Ohan & Visser, 2009). ADHD is considered to be a serious problem with girls just as it is in boys. ADHD treatment in girls should be applied just as aggressively as it in boys.

Assessing for ADHD

Parent and teacher rating scales are used as the basis for diagnosing ADHD. Information from rating scales is supplemented by information regarding the time of onset of symptoms and impairment (Posserud, Ullebø, Plessen, Stormark, Gillberg, & Lundervold, 2014). Several questions need to be considered when evaluating a child for ADHD, for example: How many symptoms is the child showing and are they enough to warrant a diagnosis? Have the symptoms lasted for at least 6 months and are the symptoms at a level that is developmentally inappropriate? Are symptoms seen in more than one setting? Do the symptoms cause impairment in academic, social, or occupational functioning? Are there any other psychiatric conditions present? And for a child who is older than 7, were symptoms evident prior to this age? (Rabiner, 2006). Diagnosing for ADHD can become complicated, this is primarily due to the fact that no one practitioner or clinician uses the same diagnostic procedures. What constitutes an appropriate
evaluation will vary from practitioner to practitioner. Information gathered should involve both the teacher and the parent; they may offer different perspectives of the child’s behavior and intensity or severity of the behavior.

Information about the child’s behavior and symptoms can be gathered through the use of standardized behavior rating scales such as the Conner’s 3 or BASC-3 (Rabiner, 2006). Other commonly used behavior rating scales include: the Child Behavior Checklist and the Attention Deficit Disorder Evaluation Scale. There is no single test used to determine or diagnose a child with ADHD, instead information is gathered from the teacher and the parents as well as observations of the child. Additional information required for a proper diagnosis should include: information about the child’s social history and problems with peer relationships, family history and if behaviors are seen in parents or other relatives, if physical examination has shown any medical causes for the child’s behavior, describe whether the child demonstrates any strengths or positive qualities that can help in a better outcome for treatment. Clinicians and school psychologist can use the child’s strengths to help tailor successful interventions.

Children are best observed in the environment in which they are noted to exhibit the most behaviors rather then in the clinician’s office. According to Chandler (2010), about 20 percent of children who are observed or interviewed in the clinic actually demonstrate the symptoms of ADHD. Children’s behaviors are best observed over a number of different occasions and environment such as the home and school. The child’s symptoms should be evaluated across six different domains that include: home, self-concept, learning and school, activities of daily living, social activities, and risky activities (Brown & Gerbarg, 2012). The Weiss Functional Impairment Rating Scale for
Parents (WFIRS-P) can be used to identify what problems are affecting the child across the six different domains (Brown & Gerbarg, 2012). Information gathered through an evaluation can help parents determine whether medication or alternative treatments will be the best option for the child.

Medication and Implications on Development

Medication for treatment of ADHD symptoms has shown beneficial short-term effects on individuals (Chang et. al., 2014). In a study conducted by Lichtenstein et. al., (2012), information was gathered on 25,656 patients with ADHD who were receiving pharmacologic treatment and also had subsequent criminal convictions. Patients who were receiving medication compared to non-medications demonstrated a reduction in criminality while under treatment. Stimulant medications such as, methylphenidate, are commonly prescribed to patients with ADHD. It is important to note that even though pharmacological treatment has shown short-term benefits, long-term effects on the development of substance abuse should be considered. The concern for substance abuse amongst medication users comes from the fact that stimulants target the area of the brain responsible for substance abuse as well as the neural mechanisms for ADHD (Chang et al., 2014). However the majority of the literature has shown that children with ADHD on stimulant medication are in fact less likely to abuse drugs in adolescence (Ingersoll & Goldstein, 1993). Pharmacological treatment is beneficial in managing the symptoms of ADHD, however it is not a cure. All medication comes with risks and it is up to parents and adults who opt for medication to compare the benefits to risks.

Methylphenidate is the main treatment used in individuals with ADHD, other drugs such as amphetamines are used in a smaller number of cases. Drugs such as Ritalin,
Equasym, and Concerta are all brand names for methylphenidate (Klorman et. al., 1984). According to Chandler (2010), individuals with ADHD show improvement upon commencement of pharmacological treatment, however not everyone benefits from medication. About 25% of individuals with ADHD may not respond to treatment at all. For children it is important to consider starting off with a low dose due to potential adverse reactions. The use of stimulants in children has shown improvement in the three main symptom domains of ADHD. The landmark Multimodal Treatment Study of Children with ADHD (MTA) has been the largest and most comprehensive study on children with ADHD to date. The MTA study conducted by Richter’s, Arnold, & Jensen et al. (1995) and involved 579 children ages 7 to 9.9 years with a diagnosis of ADHD combined type. The combined type is more frequently diagnosed than the hyperactive/impulsive or the inattentive subtype, so only children with the combined type of ADHD were included in the study.

Children in the study were assigned to 1 of 4 different treatment conditions and were evaluated 14 months later. Children were assigned to either the medication treatment only; behavioral treatment, combined treatment, and community care condition. Children in the medication only condition, 69% showed an adequate response to one of the doses of methylphenidate. Those who did not respond to methylphenidate were given dextroamphetamine, Ritalin was not available yet at time of this study. 32 children who received a placebo did not begin any medication since they responded very strongly to the placebo. Children in the behavior treatment received school based intervention and child-focused treatment. Additionally, parents in the behavior treatment received training that involved 27 group sessions and 8 individual sessions per family. Parents were trained
on specific behavioral strategies to use with their children’s ADHD behaviors. The child-focused treatment involved a summer program in which intensive behavioral interventions were employed. Children also received social skills training and specialized academic instruction as a part of the summer program. School based treatment focused on teacher consultation to implement classroom behavior management strategies and a paraprofessional aide that would work with the ADHD child in the classroom.

Children in the combined treatment received both medication and the behavioral treatment outlined above. However, towards the end of the study, children in the combined treatment condition were maintained on lower doses of methylphenidate than children in the medication alone condition. In the community care condition parents were given a list of community resources that included mental health resources in which they were allowed to make whatever arrangements they wanted to. Some of the parents in the community care condition chose to put their children on medication, which was less than what the children received in the medication only condition. Overall, children in all four conditions demonstrated significant reductions in their symptoms over a period of time. Some treatments, like the medication only treatment was clearly superior to all other treatments, however this is not to say that all other treatments should be disregarded. Even the least effective treatment showed some improvement in ADHD symptoms (The MTA Cooperative Group, 1999). Parents reported that their negative interactions were reduced across behavioral, medication, and combination treatments. After a 24-month follow up, medication still demonstrated the greatest benefit in comparison to behavioral treatment and community care treatment. The effect at 24 months was not as large as it was at 14 months. It was also noted that those children receiving medication also showed
suppressed growth compared to those who were not receiving medication (The MTA Cooperative Group, 2004).

Children in the combined treatment did not differ significantly in any of the 6 domains as compared to those in the medication only treatment. This suggests that for children who are already doing well on medication alone, adding behavioral interventions will not necessarily produce better gains in treatment (Rabiner, 2006). According to Rabiner’s (2006) analysis of the MTA study, combined treatment did demonstrate better parent and teacher ratings of the primary symptoms of ADHD including aggressive/oppositional behavior, internalizing symptoms such as anxiety and depression, and results on a standardized reading assessment. For a child who is already receiving behavioral intervention, adding medication to their treatment might produce substantial gains in the child. Overall, results from the data suggest that children receiving medication treatment either alone or in combination with behavioral treatment did significantly better. It is important to note that for those children who were in the combined treatment, receiving both behavioral treatment and medication treatment allowed them to be on a lower dose of medication than those taking medication alone. This is important for parents who are considering medication however would like to maintain a low dosage for their child. This can also take into consideration for those parents whose children are receiving minimal benefits from behavioral interventions alone. Additionally, one limitation of this study is that children who received medication from the MTA staff showed better improvement than children who received medication from physicians in the community. This could be due to the fact that dosage was taken into careful consideration as well as monitoring in each individual case (Rabiner, 2006).
Each child was carefully monitored and dosage was changed if needed. This is another important consideration for parents, especially when they are seeking medication treatment from their physicians.

In conclusion, the MTA study revealed that children who obtained both medication and behavioral treatments showed the most improvement. Those who took medication only showed greater improvements in attention, hyperactivity, and impulsivity compared to those who only received behavioral treatments. According to Brown and Gerbarg (2012), “stimulant medications were no better than behavioral treatments for oppositional behavior, peer relations, and academic achievement” (pg. 29). Depending on the severity of child’s symptoms, parents can look into combining both medication and behavioral treatments, however it is recommended to not rely on these two forms of treatment as the only options. For parents who are considering medication as their only form of treatment then it is best to seek out a specialist that will find the best medication suited for the child and monitor the child’s progress while adjusting dosage.

Medication can be proven as a beneficial treatment for children with ADHD, however side effects should be evaluated in comparison to benefits. Side effects associated with psycho-stimulants such as methylphenidate or amphetamine have shown to affect a child’s sleep and growth (Handler, 2010). According to Swanson et al. (2005), children who stayed on medication showed a decrease in growth rate by 20.3 percent for height and 55.2 percent for weight.

Methylphenidate is not only prescribed to ADHD individuals but also for those suffering from narcolepsy, so it is no surprise that one of the side effects is sleep disruption. Sleep is extremely important for young children as it affects cognition,
specifically memory, and the hormones that regulate growth (Chandler, 2010). Individuals who suffer from sleep deprivation will also demonstrate poor attention and slowed working memory. Careful dosage and monitoring of the medication is important in children in order to minimize the side effects experienced by them. According to Chandler (2010), other side effects seen include “restlessness, irritability and excitability, nervousness, night terrors, euphoria, tremor, dizziness, headache, rash, urticaria, fever, arthralgia, alopecia, etc.” (pg. 168). One myth that characterizes ADHD children on medication is that they appear to be “zombies” and that it makes them sluggish (Ingersoll & Goldstein, 1993). This could be an indication that the dosage for the child may be too high or a co-existing condition might be prevalent. The MTA study revealed that those who were prescribed medication in the community care condition were either given multiple medications and 16% of the participants were treated with an anti-depressant. Children in the medication only condition were not prescribed a combination of medications and very few needed to be prescribed with a different class of medication like an antidepressant. This again emphasizes the special consideration parents need to take when medication is prescribed to their children (Rabiner, 2006).

Even though the majority of children with ADHD show benefit from pharmacological treatment, not all children will. Not all children with ADHD need their symptoms managed by medication, some symptoms can be effectively managed with other appropriate behavioral and educational interventions. For parents who are concerned about trying medication as a form a treatment, they instead can leave that as their last option and consider the use of non-medical interventions as a first option. Medication treatment will depend on the severity of the child’s ADHD impairment, if the
child is substantially impaired in all areas of functioning then medication should be considered. However if symptoms are in the modest side, other non-medical interventions can show great improvement. About 20-30% of children with ADHD do not respond to stimulant medication, therefore other forms of treatment should be considered (Rabiner, 2006). Oftentimes it is the case that child will benefit from medication, however still experience behavioral or academic difficulties that need to be addressed with other types of interventions.

**Alternative Treatments for Children with ADHD**

There are several alternative treatments available for children with ADHD. These range from behavioral management to vitamin supplementation. The focus of this section will be on evidence based treatments that have proven to improve symptoms in children with ADHD.

*Behavior Therapy/Management*

The primary aim of behavioral therapy is to get the child to behave in a socially appropriate way and to increase the frequency of desirable behavior. Children have a natural tendency to want to please their parents and also feel good when they make their parents proud. Children are motivated when they feel that their relationship between them and their parent is a positive one. Children also behave in order to receive rewards or privileges and to avoid negative consequences. Parents often report negative interactions between them and their ADHD child, this primarily due to frustration cause by the symptoms. A good first step to take when first beginning behavioral therapy is to enhance the relationship between parent and child. One way in which parents can achieve this is by setting aside time to spend with their child. They can call this time “special time” and
aim at spending 30 minutes doing an activity that the child chooses. The parent’s sole purpose during this activity is to have a good time with their child without asking too many questions or giving commands. The parent can instead compliment the child and remain positive throughout the activity (Rabiner, 2006). This is a great way of first trying to establish good feelings and building a relationship between parent and child.

A critical component of behavioral therapy is implementing the use of positive reinforcement. In order for parents to increase the chances of their child behaving in an appropriate way they must be able to provide positive consequences. Positive consequences include rewards like tangibles or verbal praise. Parents can provide social rewards or concrete rewards and privileges for their child behaving appropriately. For example, if you want to increase compliance in the child, parents can provide a point for each instance the child does what they are told to do. Later, points accumulated can be used in exchange for privileges such as watching TV. Parents can opt to seek professional help from a professional in order to develop a good behavior plan. In the MTA study, parents were instructed on how to set up a token economy system in order to increase homework completion in their children. According to Rabiner (2006), if parents decide to implement a positive reinforcement strategy it is important that they be clear about the behavior that is expected from their child in order to earn the reward. Expectations set on the child should be reasonable and age appropriate otherwise you are potentially setting them up for failure. A positive reinforcement system or contingency management system works best if the child is able to participate in choosing the rewards they would like to earn. For the positive reinforcement system to work parents should provide a good
balance of social rewards and tangible rewards, this will lay the foundation for a positive relationship to develop between parent and child.

As a part of a child’s behavioral treatment plan, negative reinforcement should be considered a part of it as well in order to reduce misbehavior. The theory behind negative reinforcement is that if a negative consequence is followed right after a particular behavior occurs, then the behavior should diminish both in frequency and intensity. Consistency is key here, negative consequences shouldn’t be used too often as they can easily discourage a child and cause the child to lose interest. For example, if a child talks back to their parent or teacher then it would be important for the parent to discuss with the child what privileges can be lost each time they decide to “talk back”. The consequence must be aversive enough for the child in order to have an effect, so if the child enjoys watching television, then perhaps this would be a good privilege to remove as a negative consequence. It is critical to avoid consequences in which the parent cannot follow through with right away, for example telling the child that they will not be able to celebrate their birthday, the consequence must be one that can immediately occur in order for it to be effective (Rabiner, 2006). If parents decide on implementing a behavior management treatment plan for their child, it is important to remember that children with ADHD require more feedback about whether or not they are meeting expectations. Feedback may have to be provided every hour in order for the child to feel positive about their performance. Children with ADHD also perform better when they are provided with short-term goals rather then long term, this is especially true for younger children. Children with ADHD may require more opportunities to earn rewards rather then earning rewards far in advanced, like at the end of the day. Lastly, children with ADHD may
need frequent change to their behavioral program then their peers without ADHD. Teachers and parents can change the program every so often so it maintains its novelty with the child.

**Dietary Treatment**

Dr. Ben Feingold first proposed the idea of diet significantly influence the symptoms of ADHD in children. Over 3 decades ago, Dr. Ben Feingold recommended that children have a variety of artificial food colors (AFC’s), naturally occurring salicylates (chemicals that are found in fruits and vegetables), artificial flavors, and certain preservatives be removed from their diet (Rabiner, 2006). In a meta-analysis conducted by Schab & Trinh (2004) concluded that children demonstrated a statistically significant improvement in the elimination of AFC’s from their diet. The improvement however was considered modest to what is seen in children treated with medication. Nigg, Lewis, Edinger, & Falk (2012) also concluded in their meta-analysis that children on a restrictive diet show less improvement of symptoms then children on medication. About one-third of children may respond to a diet that eliminates certain foods, however results for those children who do respond may be significant. The impact of Nutrition on Children with ADHD (INCA) study involved 100 children from ages 4 to 8 diagnosed with any subtype of ADHD. Children were placed either in a 5-week Restricted Elimination Diet (RED) or on a “healthy diet”. The RED diet was very restricted and included foods such as rice, turkey, a variety of vegetables, pears and water. Those in the healthy diet condition were only given information on healthy eating for their children; restriction of food was not necessary. Once the 5 weeks were over, those in the RED condition who responded positively, meaning they showed a 40% reduction in symptoms,
went on to a 4-week double-blind food phase. 78% of children in the RED condition showed a reduction of symptoms of at least 40%. In the RED condition, parent ratings for inattentive symptoms declined by 53% and hyperactive impulsive symptoms by 54% (Pessler et al., 2011).

Symptom ratings stayed the same for those in the “healthy diet” condition. When children in the RED condition had new foods added back to their diet, 60% demonstrated an increase in ADHD symptoms. The INCA study in particular revealed results that were larger than what is commonly found from benefits from medication treatment. Additionally this study revealed a larger effect of using elimination diets for ADHD symptoms then previous literature, however results were still consistent with other studies that looked at the same issue (Rabiner, 2006). Considering dietary intervention is important for the reduction of symptoms in ADHD, provided that parents are able to adhere to following a strict elimination diet. Keeping children on a few foods diet can be difficult to follow over an extended period of time, specifically for older children. With younger children it is easier for parents to maintain them on a strict elimination versus older children who have more independence. Children with ADHD are most likely to respond to an elimination diet or an AFC-free diet if food sensitivities are suspected. Literature supports that there is a subpopulation of children who are shown to respond and demonstrate improvement on these diets (Stevens, Kuczek, Burgess, Hurt, & Eugene Arnold, 2011).

Children who are more likely to respond from an elimination diet or an AFC-free diet include: younger children, children identified with IgE-mediated allergies, and children who have irritability and sleeping problems. If parents note that their children
are not responding to standard treatment and are also exploring non-medication
treatment, then they should consider dietary interventions. According to Stevens et al.
(2011), it is important that families recognize that some children can react to certain
foods and food additives with ADHD-type symptoms. Common foods and food additives
have not been shown to be the main cause of ADHD, AFC’s and benzoate are more of a
general public health concern. For parents who suspect that their child may have
sensitivity to certain foods may want to seek out information first from their doctors. The
search for food and AFC hypersensitivities can take up to several weeks, in the meantime
could follow a 2-week diet that eliminates certain foods. According to Boris and Mandel
(1994) Foods that should be excluded include: dairy, wheat, corn, yeast, soy, citrus, egg,
chocolate, and peanuts. AFC’s, artificial flavors, and preservatives should be excluded as
well. Parents will be required to carefully read all labels both at home and the grocery
store. AFC’s are also found in medications and certain personal care products. The parent
can then re-introduce foods back into the diet every 2 days and note if they notice any
reactions.

*Neurofeedback Training*

Neurofeedback training or EEG (electroencephalograms) biofeedback has been
recognized as a treatment for ADHD individuals since 1979. It is considered an operant
conditioning procedure in which individuals are able to self-regulate bioelectrical activity
occurring in the brain (Buitelaar, Kan, & Asherson, 2010). Patients learn to become
aware their state of alertness in order to influence it. This occurs through the use of EEG
brain wave recordings. Brain electrical activity is recorded in the form of an EEG through
the use of computer software. Sensors on the individuals scalp detect brain activity with
the use of the computer software. Information appears on the computer screen, which provides feedback to the individual of their current brain activity. The individual is then able to respond to the feedback provided which create changes in the EEG. Individuals with ADHD demonstrate dysregulated brain wave functioning, and Neurofeedback training allows for low-wave activity (theta) to be inhibited and faster activity (beta) to be enhanced (Buitelaar, Kan, & Asherson, 2010). If an individual finds that they experience concentration deficits and show that they have high theta/beta ratios, Neurofeedback training can enhance beta activity to improve concentration and focus. The individual can chose if they would like visual or audio feedback, sessions last about 45 minutes. Positive changes in either behavior or cognitive performance have noted after at least 20 sessions (2010).

Several studies have demonstrated positive changes in individual’s behavior and attention after 20 to 30 sessions (Buitelaar, Kan, & Asherson, 2010). Additionally, Neurofeedback training has also been shown to produce the same improvements as those on medication (Buitelaar, Kan, & Asherson, 2010). However one criticism that remains with this is the lack of studies that have controlled for bias. The efficacy of Neurofeedback training hasn’t been proving yet through the use of double-blind, randomized controlled studies. Neurofeedback training can still be used in conjunction with other treatments or when others don’t seem to work. It has been documented that humans can learn to control their brainwaves by the use of operant conditioning. Neurofeedback has been shown through the literature that it addresses the core symptoms of ADHD, however most of the research has only included children and adolescents.
Nutritional Supplementation

The theory behind nutritional supplementation is that some individuals are lacking certain nutrients or are deficient them so much that is impairing normal brain functioning. Supplementation of macronutrients and micronutrients has been proposed as a treatment for individuals with ADHD. Amino acid supplementation with, for example, l-tyrosine or l-phenylalanine has been shown to provide temporary improvements in symptoms however results typically only last for 2 to 3 months (Buitelaar, Kan, & Asherson, 2010). It is not seen as a promising long-term treatment but could potentially provide relief while looking to and initiating other interventions. A diet deficient in essential fatty acids have demonstrated impairment in brain function that lead to symptoms of inattention, distractibility, and poor impulse control. Essential fatty acids that are considered to be helpful are EPA eicosapentaenoic acid and docosahexaenoic acid (DHA) part of the omega 3 family, and gamma-linolenic acid (GLA) part of the omega 6 family. Using a combination of the essential fatty acids revealed moderate benefits, however further controlled trials in individuals are required (Buitelaar, Kan, & Asherson, 2010). Several double blind, placebo controlled, randomized studies resulted in either equivocal results or mild improvement in impulsivity and inattention. (Aman et al., 1987, Arnold et al., 1989, Voigt et al., 2001, & Richardson & Puri, 2002).

Zinc supplementation has been shown to help some children with inattention difficulties due to the fact that zinc is a cofactor in producing dopamine and norepinephrine. Both of these neurotransmitters are linked with ADHD (Brown & Gerbarg, 2012). In two Middle Eastern studies, supplementing with zinc sulfate monotherapy demonstrated better results in reducing ADHD symptoms then a placebo
Children who were on medication treatment revealed better improvement in their symptoms when supplementing with zinc than those who were on medication and a placebo. It should be noted that zinc supplementation is still being explored as a potential treatment in an American sample. In the Middle East it is documented that zinc deficiency is common and the trials that have been carried out have revealed positive results. Magnesium is another mineral that can possibly be low in individuals with ADHD. Magnesium supplementation was found to be helpful in Polish children and from an open study in France, however two American samples did not show a Magnesium deficiency by blood test (Buitelaar, Kan, & Asherson, 2010). Iron is an important mineral to consider especially in girls with ADHD. One study that used 73 teenage non-poaanemic but iron deficient girls found that verbal learning and memory were improved with supplementation (Buitelaar, Kan, & Asherson, 2010). Children who are suspected to be deficient in iron can demonstrate improvement in learning and memory with supplementation (Brown & Gerbarg, 2012). 23 children in one controlled study received 80 mg of iron supplementation a day and appeared to show improvement in ADHD symptoms. These children had low serum ferritin levels and were in the ages of 5 to 8. Several studies have shown that if a iron deficiency is present then children or adolescents may benefit from supplementation, however larger studies are still needed to look into the role of iron in the treatment of ADHD.

*Parent’s Role in Dietary Treatments*

How can parents determine if nutritional supplementation is the right treatment to consider for their child? Parents should consider beginning with a physical exam and determining whether their child presents with any allergies, thyroid dysfunction, if there
are any mineral deficiencies or imbalances, or other medical problems (Buitelaar, Kan, & Asherson, 2010). A complete blood panel should also be considered when completing the child’s health exam to screen for mineral deficiencies. If parents suspect that there is a specific cause to the child’s ADHD symptoms, then alternative treatments could be explored. Alternative treatments can be a reasonable first line of treatment if and only when the cause of ADHD is diagnosed. Specific treatments can then be targeted if for example a food allergy was diagnosed as the cause to the child’s hyperactivity. Once the parent has ruled out what is underlying the child’s ADHD symptoms, and then they can consider implementing treatments such as medication or behavioral therapy. Anytime a parent or teacher is considering a certain type of treatment to implement, one should always establish a baseline of behavior through the use of assessment. This can be done with a rating scale or check list for example. This is important in order to compare the child’s behavior before and after treatment. Treatments should only be tried one at a time and be given adequate time to determine if it worked. It should be noted that Alternative treatments take longer to show effect as compared to medication (Buitelaar, Kan, & Asherson, 2010).

*The Role of the Teacher*

Several ways in which parents can implement treatments at home have been outlined, however what can a teacher do when he or she encounters a student with ADHD in their classroom and how can parents help? First and foremost teachers should begin by learning what ADHD is and how symptoms present at all different grade levels in the classroom. In later grades teachers have a hard time believing that a student in high school has ADHD, this is mainly due to adolescents tendency to develop strategies to
cope with their hyperactivity (Kutscher, 2008). Issues with attention, organization, and preparation problems can be misinterpreted as a lack of motivation in students. Teachers can request for ADHD classroom materials and resources from their schools special education staff. Teachers can look for other associated problems with ADHD such as poor handwriting, poor expressive writing skills, difficulties with spelling and following directions, as well as trouble following a sequence of commands (Kutscher, 2008).

Teachers from throughout the day can rate the students ADHD behaviors using a checklist to determine which behaviors are impacting their learning the most. Parents and teachers can collaborate on filling out the checklist and determine if any consistencies in ADHD behaviors exist.

In order for teachers to provide a positive learning environment for students with ADHD, they must provide a classroom with structure, routine and direction from adults (DeRuvo, 2009). Students with ADHD require routine and structure in order to know what is expected of them in terms of behavior. Teachers will create a successful classroom environment when students are engaged in learning. Student’s benefit from being active participants in the classroom, rather than passive observers. According to DeRuvo (2009), the book “Classroom Instruction That Works” has identified nine research-based strategies that promote improvement of academic outcomes:

“asking students to identify similarities and differences, teaching students to summarize and take notes, reinforcing effort and providing recognition, focusing on the important aspects of homework and practice, using nonlinguistic representations, facilitating cooperative learning, setting objectives and providing feedback, challenging students to generate and test hypothesis, and using cues, questions, and advance organizers” (2009,
Working collaboratively with parents, teachers can learn ways in which they can implement these strategies in a way that accommodates the ADHD child. If the teacher is dealing with behavioral difficulties in the classroom that can choose to implement token economy systems, behavioral contracting, daily report cards, behavioral principles, self-monitoring, time-out, modeling, peer teaching, and pre-referral strategies (Harvey, 2005). Teachers can consult with a school psychologist in order to problem solve ways in which they can implement certain behavioral strategies for the student. Identification and analysis of the problem behavior can help figure out the function of the behavior and why it is occurring. Through the consultation problem solving process teachers can identify goals for the student and review previous interventions that have already been tried (Harvey, 2005).

Teachers play an important role in helping parents figure out developmental issues occurring in the child. Teachers have familiarity with children’s normative behavior and the characteristics attributed with similar aged children. Oftentimes it is the teachers who first identify a problem occurring with the child. Teachers can then consult with a school psychologist on ways to help notify parents about the problems that child is experiencing as this can be a sensitive issue for many parents.

Synthesis of Literature Review

An estimated 2 million children in the US were diagnosed with ADHD in 2011. Attention-deficit/hyperactivity disorder is the most common diagnosed childhood disorder that can impair a child’s academic achievement, social interactions, and day-to-day functioning. ADHD is a disorder that poses substantial cost on families as well as puts strain on family and peer relationships. Health care costs associate with the disorder
are estimated at 3.3 billion dollars annually. ADHD’s core symptoms include: inattention, impulsivity, and hyperactivity. The core symptoms in ADHD children are prevalent to a far greater degree and across different situations then those without the disorder. The symptoms can impair children on a social, emotional, and academic level. Children with ADHD have a difficult time sustaining attention in class, following classroom rules, exerting self-control, thinking about consequences before acting, and developing meaningful relationships with other children. The three types of ADHD are: predominantly inattentive type; hyperactive-impulsive type; and the combined type.

There are a higher proportion of boys diagnosed with ADHD then girls and symptoms must be present before the age of seven. Additionally, symptoms must be present in two or more settings and cannot be due as the result of another disorder.

If the parent suspects their child has ADHD the next step in the process would be to request an evaluation from their primary care physician. Assessment of the ADHD child must follow the DSM-V criteria and should include data gathered from the school and family. An evaluation must additionally include multiple procedures that include behavior rating scales, interviews, behavioral observations, and a psychoeducational assessment. Once the evaluation is complete parents and teachers can determine what the best form of treatment for the child will be. For preschool age children it is strongly recommended that an evidence based parent or teacher administered behavior treatment should be implement first. If behavior intervention does not provide significant improvement then pharmacological treatment should be consider. However parents should outweigh the risks of starting a medication treatment at an early age. Depending on the severity of the child’s symptoms, strong evidence supports the use of stimulant
medication and improving ADHD’s core symptoms. Parents can also choose to seek out alternative treatment if ADHD symptoms do not warrant medication. Behavioral treatments such as clinical behavior therapy/parent training, direct contingency management, and positive and negative reinforcement have proven to improve symptoms in children with ADHD.

Other alternative treatments parents can explore include dietary treatment, Neurofeedback training, and nutritional supplementation. However these treatments provide benefit to children who present with mild to moderate symptoms. Parents should seek professional help from their physician on ways they can implement treatments at home as well as how to monitor them. Treatment plans can be developed for parents in order to create better successful outcomes for parents and children. Parents can also seek support from their school and teachers to collaboratively provide interventions for the child. They can request for adaptations and modifications to be made in the classroom. If a child retains a diagnosis of ADHD then he or she may be able to qualify for a behavioral support plan and accommodations through a 504 plan, or an Individual Education Plan (IEP). Parents should consult with their school’s school psychologist to determine what first steps they need to take before an educational evaluation is considered.
Chapter Three

Process in Developing and Implementing Project

Many parents with whom I work with express concerns for how to handle their child’s ADHD symptoms. Oftentimes parents do not know how to seek out resources and ways to handle their child’s behavior at home and at school. A handbook on Attention Deficit Hyperactivity Disorder was created in order to help out parents, teachers, and other professionals inform themselves on the disorder. In this handbook information on ADHD is provided, characteristics of the disorder in boy and girls, treatment options as well as alternative treatments are outlined, and the importance of the teacher’s role in working with the ADHD child.

Development of Project

This handbook was developed to help the countless families I worked with in my internship. The majority of the cases that I worked with at the schools I have intern at have involved children with ADHD. Parents of young children express concerns over treatment options, specifically those involving medication. This handbook provides parents with a wealth of knowledge of ADHD, when to consider medication, and what are the alternative treatments available to them. The information was first presented as an in-service presentation at the schools I am currently interning at. Printed copies of my handbook were given to parents and teachers who attended my presentation. The presentation was set up with the community liason from Santa Monica Malibu Unified School District.

The presentation and handbook gave parents and teachers an in depth idea at what ADHD is and how the child is affected by the core symptoms. Parents and teachers also
learned the process of assessing and evaluating the ADHD child both in the home and school setting. Characteristics of both boys and girls with ADHD were discussed, as well as what to look for in girls with suspected ADHD. Medication and alternative treatments were outlined in my presentation as well as in my handbook. Parents and teachers were given resources as to what websites they can utilize to further expand their knowledge about ADHD as well as how to go about an evaluation with a specialist.

*Intended Audience*

This handbook is intended for anyone who knows, works with, or has an ADHD child. This includes: parents, teachers, family and friends, doctors, and school professionals. Information is always provided to families I encounter on a daily basis at my internship school site who demonstrate or suspect concerns with ADHD. During consultation if teachers bring up concerns about the possibility of a student demonstrating ADHD symptoms then the handbook is provided. The information in the handbook is only intended for children and adolescents who have a diagnosis of ADHD. Information on comorbid disorders is not provided; therefore it is not intended for those who seek information for ADHD and Oppositional Defiant Disorder or Autism as an example.

Information in regards to the mental health issues ADHD children suffer from is not discussed. However if parents wish to seek out resources in that area then they will be guided with information. Copies of the handbook were provided at my presentations and during any instances in which I work on a case that suspects an Other Health Impairment qualification for special education. The handbook will be converted into a PDF book in order to allow parents, teachers, and other professionals the ability to download the book online.
Environment and Equipment

There is no special equipment needed for the handbook. Ultimately the handbook is best if it is provided in a school setting. However, it is recommended that the handbook be kept in the families’ home of the ADHD child as a quick resource as well as in the teacher’s classroom. The school psychologist can keep the handbook on hand to provide to parents when working with them directly through an evaluation. The handbook is best suited in an environment that deals with ADHD children.

Project Outline

Information provided in the handbook includes the following:

- What ADHD is, diagnostic criteria, and characteristics
- Symptoms and behaviors as seen across different environments
- Assessment and Evaluation of the ADHD child
- Medication and its implications on development
- Alternative treatments: behavior therapy, dietary treatment, Neurofeedback training, and nutritional supplementation
- The role of the teacher
- Resources for parents and teachers on obtaining further information on ADHD and treatment.
Chapter Four

Conclusion

Summary

The purpose of this project was to help parents, teachers, and children suffering from ADHD in an educational setting. The handbook was created to educate families and teachers on what ADHD is, treatment options, the symptoms, and what to do about it. Several of the ADHD cases I have worked with have all demonstrated that addressing this disorder is not easy. Parents are at lost as to how to manage their child’s behavior and teachers are confused as to how to help the child succeed academically. It is common to witness an ADHD child be severely impacted in the classroom and not at home. Situations like this make it difficult both for the parent and teacher to develop successful interventions that will target the child’s behavior. Both the handbook and in-service presentation provided to the schools I am interning at will help educate parents, teachers, and other school professionals on ADHD, behaviors, treatment options, evaluation, and classroom strategies.

According to the Centers for Disease Control and Prevention, since 2011 the percentage of children diagnosed with ADHD continues to rise. In 2003 7.8% children were diagnosed, 9.5% in 2007, and 11.0% in 2011. From 1997 to 2006, rates of children being diagnosed with ADHD have increased an average of 3% a year and 5% from 2003 to 2011 (CDC 2015). Parents of children with ADHD report 3 times as many peer problems then those without a diagnosis of ADHD. The prevalence of children with ADHD in special education is increasing as well. The majority of the cases I have worked on thus far in my internship experience have involved children demonstrating ADHD like
symptoms. With the wealth of information available on ADHD, it is quite overwhelming to those who might find it difficult to sift through all the information. Through my research I narrowed down the important things to know about ADHD that will help parents and other school professionals have a basic understanding and a good starting point. Symptoms and Characteristics were discussed in order to differentiate the different types of ADHD. It is often assumed that ADHD means the child is hyperactive and inattentive, however that may not be the case. It is also important to note how ADHD looks like and boys and girls, specifically the symptoms in the classroom and across different environments.

Medication still continues to be one of the first forms of treatments prescribed to children with ADHD. The percentage of children taking medication has increased by 28% from 2007 to 2011, that was an annual increase of about 7% a year (CDC 2015). Medication still continues to be one of the most commonly known and successful treatments for children with ADHD, however alternative treatments are beginning to prove just as effective. Parents demonstrate concerns for side effects and growth development when children are taking medication and are often left without information to alternative treatments. Parents now have the options to seek out other forms of treatment depending on the severity of their child’s symptoms. Alternative evidence based treatments includes: behavioral therapy, Neurofeedback training, dietary intervention, and nutritional supplementation. To determine the best successful intervention for the child also involves collaboration with their school and teachers. Academically, children with ADHD are reported to perform behind their peers, oftentimes presenting with behavior challenges most teachers are not trained to handle.
This handbook will provide resources for teachers and parents of an in depth analysis of ADHD, evaluation, treatment, and classroom management. The handbook was created as a user-friendly guide for parents and teachers to keep within hands reach in their home or classroom whenever encountering questions of ADHD.

Discussion

A large amount of positive feedback was received from my presentation to teachers and families. The audience was very engaged in the topic and asked many questions during the presentation. Some people in the audience demonstrated interest in finding out what the prevalence rate of ADHD is in other countries. Others furthered query the new criteria change of the DSM-V and wondered as to why it was changed. It was a little difficult to provide the same information to both parent and teachers as some of them seemed confused and asked many questions. For future in-service presentations I would make two different presentations that is tailored more specifically to parents or teachers.

Teachers wanted to focus more on the special education piece and the types of classroom interventions available. Parents demonstrated more interest on the clinical diagnosis piece and how to go about evaluating their child. Based on the data gathered from the in-service through the use of surveys, both parties reflected that they benefited from the information provided to them. Many commented that they enjoyed the interventions, others reported that they were unaware of the different types of symptoms characteristic of ADHD.
Limitations

The information presented in this handbook provides a basic review of ADHD and its characteristics. One of its limitations is that an in-depth review of ADHD is not provided. Parents might find that seeking out research or purchasing a book on ADHD may be more beneficial. Parents and teachers who want more information in regards to girls and ADHD will have to invest more time seeking out specific information related to girls. Since most studies in ADHD are performed on boys, information included in the handbook pertain more to boys than girls. Teachers might get a benefit of understanding what ADHD is and its characteristics, however information on specific classroom interventions is not provided. Furthermore, teachers will have to seek out support from their school psychologist if they wish to refer a child for a special education evaluation if they suspect that they have ADHD.

Lastly, another limitation includes the fact that the information provided on alternative treatments is geared towards children experiencing mild to moderate symptoms. Parents who have a child with severe ADHD will most likely want to consider medication. Information on medication and its uses is not provided in the handbook. However with the resources provided parents can find useful information about medication for ADHD.

Further Work/Research

When first embarking on this project, my sole focus was to discuss alternative treatments and not medication. However through my research, I concluded that medication is in fact very successful in treating ADHD symptoms. I used to be opposed to the idea of prescribing medication to children, but in certain cases, children with severe
symptoms would most likely benefit from it. As a school psychologist intern I would never recommend parents place their child on medication treatment, I would however provide them with options by giving them my handbook to take home. Essentially, with this handbook, my hope is that all families in the schools that I work with will obtain copies of my handbook and be able gain great use from it. It is my goal that handbook be used by multiple teachers and parents in the schools I work with and provide them with great information and knowledge. I will continue to offer in-service presentations for those who are first embarking on the ADHD journey or for those who want to continue to expand their knowledge.

Essentially I would like this handbook to provide enough knowledge to parents and teachers so that they feel that they have a good enough grasp on ADHD. However, I do believe that further research needs to be done on the causes of ADHD. Knowing what causes ADHD will help tremendously in preventing the disorder as well as designing specific interventions for individuals. Additionally, more information needs to be provided to parents and families on the burden of having a child with ADHD. Specifically the burden of medical/treatment costs, educational costs, and family costs. Information can then be provided to parents of young children with ADHD in order to prepare for some of the costs associated with the disorder. Lastly, parents and families of children with ADHD would benefit from knowing how to prevent unintentional injuries in children, alcohol and drug abuse as well as sexual risk-taking behavior in teenagers, and other health risk behaviors, which are associated with ADHD.
References


Buitelaar, K., Kan, C., & Asherson, (2010). ADHD in Adults: Characterization,
Diagnosis, and Treatment. Cambridge University Press.


Klorman, R., Bauer, L.O., Coons, H.W., Lewis, J.L., Peloquin, J., Perlmutter, R.A.,
methylphenidate on normal young adults’ cognitive processes.
Psychopharmacology Bull. 20(1): 3-9

Kingsley Publishers.

executive function are associated with academic functioning in youth with
attention-deficit/hyperactivity disorder?. Journal Of Abnormal Child
Psychology, 41(7), 1145-1159.

Larsson, H. (2012). Medication for attention deficit-hyperactivity disorder and

Nigg J.T., Lewis K., Edinger T., & Falk M. (2012). Meta-Analysis of Attention-
Deficit/Hyperactivity Disorder or Attention-Deficit/Hyperactivity Disorder
Symptoms, Restriction Diet, and Synthetic Food Color Additives. Journal of the


The MTA Cooperative Group a 14-month randomized clinical trial of treatment strategies for attention-deficit/hyperactivity disorder. Arch Gen Psychiatry. 1999;

APPENDIX A

A PARENTING HANDBOOK FOR CHILDREN WITH ADHD: FOR THOSE SEEKING ALTERNATIVE TREATMENTS AND INTERVENTIONS TO IMPLEMENT AT HOME AND AT SCHOOL

By
Jennifer L. Quevedo

May 2016
A Parenting Handbook for Children with ADHD: For Those Seeking Alternative Treatments and Interventions for Home and School

By: Jennifer Lynn Quevedo
For Parents, Teachers, School Psychologists and other professionals

This handbook is intended as a beginners guide to assist you in getting to know the world of ADHD. It will be your guide in knowing the basics of ADHD and how to go about to deciding the best form of treatment for your child or child that you are working with. The world of ADHD can become very challenging with the wealth of information available on the Internet. As a parent you will most likely encounter school professionals advising you to evaluated your child and to put them on medication, however you cant imagine the thought of putting your little child on medication. As teachers you might find yourself fed up with dealing with the child who cannot stop getting out of his seat and getting distracted every 5 minutes. This handbook will provide you with some of the important basics and strategies for handling the child with ADHD both at home and school.
What is ADHD?

The American Psychiatric Association defines it as a disorder characterized by a persistent pattern of inattention and/or hyperactivity/impulsivity that manifests in educational, occupational, or social settings.

Difficulties with attention include making careless mistakes, failing to complete tasks, problems staying organized and keeping track of things, and becoming easily distracted.

Problems with hyperactivity include frequent fidgetiness, running or climbing during instances that are not appropriate, excessive talking, and being constantly on the go. Impulsivity presents as impatience, difficulties in waiting for one’s turn, blurting out answers, and frequent interrupting.

For a formal diagnosis of ADHD to be given, the child must be meet certain DSM-V Criteria which include:

- Children younger than 17 must display 6 of the 9 inattentive and/or hyperactive impulsive symptoms.
- Individuals 17 and above must display 5 or more of the 9 symptoms.
- Symptoms must be present for at least 6 months and to a marked degree that is inconsistent with the child’s developmental level.
- The child must display some hyperactive/impulsive or inattentive symptoms that cause impairment before the age of 12 years.
- Hyperactive/Impulsive or inattentive symptoms must be present in two or more settings, suggesting that symptoms can be evident in more than one context.
but don’t have to impair the child’s functioning in multiple contexts.

- There must be clear evidence that the symptoms interfere with, or reduce the quality of, social, academic, or occupational functioning.

- The symptoms do not occur exclusively during the course of a schizophrenia or other psychotic disorder and are not better accounted for by another disorder.

- DSM-V additionally requires that clinicians identify the severity of the child’s ADHD as mild, moderate, or severe.

Children who are suspected with having ADHD do not need to display both inattentive and hyperactive/impulsive symptoms.

It is important to note, especially when evaluating a student in school, that parents must be aware that symptoms must be present in two or more settings. This could mean that symptoms are being seen both at home and school. However, symptoms don’t necessarily need to impair the child’s functioning in both settings.

For example, symptoms of ADHD are present both at home and school, however the child is only being impaired at school due to rigorous demands.

It is often the case that parents will refer a child for assessment at school due to difficulties for attention. However once the evaluation is completed and rating scales determine that the child is only presenting with attention difficulties at school, then the child is not necessarily presenting with ADHD. Other factors could be at play such as anxiety.

**ADHD in Boys and Girls**

Most studies done on ADHD/ADD are usually based on boys. Very few girls are usually included in the sample size, so as a result the majority of the literature on ADHD/ADD is based on male subjects. Boys are four to nine times more likely to be diagnosed with ADHD.

Boys tend to be diagnosed earlier then girls because girls are more likely to have the inattentive type of ADHD, thus less likely to show obvious problems. Externalizing behaviors are more common in boys and internalizing behaviors in girls.

Externalizing behaviors include those related to oppositional defiant disorder and conduct disorder.
Girls show more internalizing behaviors such as those related to anxiety, mood disorders, and depression.

Based on the scientific literature on ADHD, girls with ADHD are more likely to have conduct, mood, anxiety disorders, lower IQ and achievement scores, and impaired social, school, and family functioning. These results extend to boys with ADHD as well, however it is important to stress the severity of the disorder in girls too. Teachers are more likely to identify a boy with ADHD then a girl with ADHD in the classroom.

It is easier to identify a boy who externalizes their ADHD behaviors rather than a girl who internalizes her behaviors. Girls who tend to have inattentive symptoms may lead them to internalize their behavior causing them to become anxious or depressed.

Girls are over five times more likely than boys to be diagnosed with depression and three times more likely to be identified and treated for their depression rather than their ADHD.

**Key Points**
- Girls tend to be inattentive rather than hyperactive/impulsive
- Boys are more likely to exhibit conduct disorder, aggression, and delinquency. This makes them more likely to be referred for their disruptive behavior
- ADHD is commonly missed or the severity of ADHD may be underestimated in girls, therefore leading them to be less likely to be referred.
- Girls tend to have greater cognitive and attentional impairment and are often more likely to be rejected by their peers.
- Repeating a grade is more common in girls than boys with ADHD.
• Girl’s symptoms are not typically recognized as indications of ADHD, this usually because their symptoms are less noticeable.

What Causes ADHD?
Clinicians and Scientist agree that ADHD is a heterogeneous (diverse) disorder. It has multiple causes that include: biological, psychological, and social conditions that all influence each other.

ADHD is often presumed to be a neurological disorder, largely due to the fact that individuals demonstrate abnormal brain functioning. Functions of the brain that are involved in attention, planning, organization, and inhibition of impulses involve the frontal lobe part of the brain. The frontal lobe controls the individual’s executive functions.

Individuals with ADHD tend to have executive functions that develop a lot slower then those without ADHD. Certain drugs that work on neurotransmitters of the brain support the theory that brain chemistry is responsible for ADHD. Several researchers have demonstrated that children with ADHD have lower brain activity in the frontal region and less blood flow. MRI (magnetic resonance imaging) studies have found differences between the brain structures of those with ADHD.

Studies have shown that higher rates of ADHD occur in biological relatives of ADHD children. This is has further been shown in studies which examine ADHD children who have been adopted. Higher rates of ADHD occur in biological parents of ADHD children compared to adoptive parents of ADHD children.

There is evidence to support the genetic effects in the development of ADHD in children. Non-genetic factors that are related with ADHD include: premature birth, maternal alcohol and tobacco use, traumatic brain injury, and exposure to high levels of lead early in childhood.
Chapter 2

Assessment and Evaluation of ADHD

How do I begin the process?

Diagnosing for ADHD can become complicated, this is mainly due to the fact that no one practitioner or clinician uses the same diagnostic procedures. What constitutes an appropriate evaluation will vary from practitioner to practitioner. Information gathered should involve both the teacher and the parent; they may offer different perspectives of the child’s behavior and intensity or severity of the behavior.

In most cases, professionals and clinicians will incorporate the use of rating scales as a part of their evaluation. There is no lab way to test for ADHD, instead clinicians rely on the patient’s responses to questions, how the family describes behavior problems, and a school assessment.

There is no one single test to establish a diagnosis of ADHD. Evaluation and Diagnosis of ADHD should include the following:

- Assessment of ADHD’s core symptoms of inattention, hyperactivity, and impulsivity.
- Evaluation of the developmental history of the child’s symptoms prior to age 12
- Documentation of family history of ADHD
- Demonstration of academic difficulties
- Examination of how the symptoms impair the child’s functioning at home, school
If possible is always important to include the child’s teacher on their evaluation. The child’s teacher is most likely to have the most information on their behavior than other professionals at school. It is not common to identify other developmental disorders that co-exist with ADHD. Therefore it is important to consider the possibility of other co-existing conditions to be present. Co-existing conditions can include: anxiety, depression, conduct disorder, learning disorders, and speech and language disorders.

**The Role of the Physician**

For parents suspecting that their child may have ADHD, a physician is one of the first persons they should consult with first. A physician is a good first person to contact since they are familiar with the child’s medical history as well as the families.

Always convey the importance of doing a full assessment of the child before the doctor decides to prematurely offer medication in order to handle the problem. A routine physical examination should also be conducted to rule out any medical illness that could be causing the symptoms.

Specialist such as psychiatrists and neurologists can also be contacted. These individuals are specialists and trained in the assessment and treatment of ADHD. They can also help families identify other possible neurological and psychiatric disorders that could be co-existing.

with ADHD or that may be causing ADHD like symptoms to occur.

**The Role of the Clinical or School Psychologist**

Psychologists administered tests of cognition, processing (visual, auditory, visual-motor), and language development in order to determine if there is a learning disorder present that could be causing ADHD symptoms. Psychologists conduct psycho-educational assessments that involve data collected from both parents and teachers. Typically as a part of the evaluation, psychologist give out rating scales that measure attention span, self-control, executive function, hyperactivity, aggression, and social behavior.

Important components that should be included in a psycho-educational assessment include, interview with the parent and teacher, documentation of the presenting problems, developmental and medical history, and behavior rating scales.

**Impact on Educational performance**

It is important to consider the extent of how the child’s ADHD is affecting their educational performance. As a part of an educational assessment, the assessment team decides the level of impairment caused by the ADHD symptoms.
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Some children can demonstrate the full range of ADHD symptoms but not be significantly impaired in their classroom environment. Determining the child’s level of impairment will primarily be based on the information gathered through assessment. This will include rating scales, testing, record review, parent and teacher interviews, and observations.

One of the final steps to determining whether or not a child has ADHD depends on whether there are alternative explanations for the symptoms. The symptoms of ADHD must not be occurring due to another psychiatric disorder.

This just simply implies that the clinician must rule out a variety of alternative explanations for the ADHD like symptoms. This can include: medical issues, mental health disorders, psychosocial factors, and developmental and cultural factors.

Certain conflicting situations may arise during an evaluation of the ADHD child. For example, parents and teachers may not report consistent information of the presenting problems seen in the child. The teacher may report clinically significant findings while the parents report mild problems occurring at home. This as a matter of fact can provide important information to the clinician or psychologist.

This can be interpreted as the student being significantly impacted more in their educational environment rather than their home environment. Situational variability is a hallmark of ADHD; in fact different environments lead to different levels of symptom expression.

A key take away to remember when suspecting if your child or a student has ADHD, is whether the symptoms or behaviors are inconsistent with developmental level.

It is always recommended to take caution in having a child evaluated or assessed under the age of four. This is due primarily to the difficulty in identifying true ADHD symptoms from typical behaviors in children from that age group.
In conclusion, a full comprehensive evaluation should include: information gathered from multiple informants, settings, and assessment modalities. The use of ratings scales and criteria from the DSM-5 (Diagnostic Statistical Manual) is a crucial component of the evaluation. The use of both strengthens the clinician’s or psychologist assessment.

Developmental factors are also important to consider. This can lead to clues as to what areas are leading to the child’s impairment. Identification of culture and contextual factors is another important component to a child’s evaluation. Certain factors can impact how the child’s ADHD is expressed. Lastly, the child’s strengths, assets, and competencies should always be identified, as they will help in choosing successful interventions.
Chapter 3

Medication and its Implications on Development

When Should you Consider Medication?

If considering medication as an option for treatment, it is recommended that other treatments be used in combination. Other treatments include: behavior modification, counseling, educational planning, and parent training. The research on the use of medication for ADHD is abundant and has demonstrated efficacy on treating the symptoms.

Research has also shown that in most cases medication can be the most effective treatment a child will receive. This is very true for children who suffer from severe impairment and who demonstrated a high level of need based off their symptoms. Pharmacological treatment is beneficial in managing the symptoms of ADHD, however it is not a cure. All medication comes with risks and it is up to parents and adult who opt for medication to compare the benefits to risks outcomes.

Methylphenidate is the main treatment used in individuals with ADHD, other drugs such as amphetamines are used in a smaller number of cases. Drugs such as Ritalin, Equasym, and Concerta are all brand names for methylphenidate. Individuals with ADHD show improvement upon beginning medication treatment, however not everyone benefits from medication.

About 25% of individuals with ADHD may not respond to treatment at all. For children it is important to consider starting off with a low dose due to potential adverse reactions.
The use of stimulants in children has shown improvement in the three main symptom domains of ADHD. It is important to note that receiving both behavioral treatment and medication treatment allow children to be on a lower dose of medication than those taking medication alone.

The largest study to date ever conducted on children with ADHD revealed that children who obtained both medication and behavioral treatments showed the most improvement. Those who took medication only showed greater improvements in attention, hyperactivity, and impulsivity compared to those who only received behavioral treatments.

Depending on the severity of the child’s symptoms, parents can look into combining both medication and behavioral treatments, however it is recommended to not rely on these two forms of treatment as the only options. For parents who are considering medication as their only form of treatment then it is best to seek out a doctor that will find the best medication suited for the child and monitor the child’s progress while adjusting the dosage.

What are the side effects?

Medication has been proven as a beneficial treatment for children with ADHD, but with medication also comes side effects.

Side effects associated with ADHD medications such as methylphenidate or amphetamine have shown to affect a child’s sleep and growth development.

Methylphenidate is not only prescribed to ADHD individuals but also for those suffering from narcolepsy, so it is no surprise that one of the side effects is sleep disruption.
Sleep is extremely important for young children as it affects cognition, specifically memory, and the hormones that regulate growth. Other side effects include restlessness, irritability and excitability, nervousness, night terrors, euphoria, tremor, dizziness, headache, rash, urticaria, fever, arthralgia, alopecia, etc.

One myth that characterizes ADHD children on medication is that they appear to be “zombies” and how medication makes them sluggish. This could be a clue that the dosage for the child may be too high or a co-existing condition might be prevalent. This emphasizes the special consideration parents need to take when medication is prescribed to their children, always emphasize that dosage should be monitored.

Even though the majority of children with ADHD show benefit from pharmacological treatment, not all children do who receive it. Not all children with ADHD need their symptoms managed by medication, some symptoms can be effectively managed with other appropriate behavioral and educational interventions.

For parents who are concerned about trying medication as a form a treatment, they instead can leave that as their last option and consider the use of non-medical interventions as a first option. Medication treatment will depend on how severe the child’s ADHD impairment is, if the child is substantially impaired in all areas of functioning then medication should be considered.

However if symptoms are in the modest side, other non-medical interventions can show great improvement. About 20-30% of children with ADHD do not respond to stimulant medication, therefore other forms of treatment should be considered.

Oftentimes it is the case that child will benefit from medication, however still experience behavioral or academic difficulties that need to be addressed with other types of interventions.
There several alternative treatments available for children with ADHD, from behavioral management to vitamin supplementation, however only evidence based treatments that have proven to improve symptoms in children with ADHD will be discussed.

1. Behavior Management/Therapy

The primary aim of behavioral therapy is to get the child to behave in a socially appropriate way and to increase the frequency of desirable behavior. Children have a natural tendency to want to please their parents and also feel good when they make their parents proud. Children are motivated when they feel that their relationship between them and their parent is a positive one. Children also behave in order to receive rewards or privileges and to avoid negative consequences.

A good first step to take when first beginning behavioral therapy is to enhance the relationship between parent and child. One way in which parents can achieve this is by setting aside time to spend with their child.

They can call this time “special time” and aim at spending 30 minutes doing an activity that the child chooses. The parent’s sole purpose during this activity is to have a good time with their child without asking too many questions or giving commands.

A critical component of behavioral therapy is implementing the use of positive reinforcement. In order for parents to increase the chances of their child behaving in an appropriate way they must be able to provide positive consequences.
Positive consequences include rewards like tangibles or verbal praise. Parents can provide social rewards or concrete rewards and privileges for their child behaving appropriately. For example, if you want to increase compliance in the child, parents can provide a point for each instance the child does what they are told to do. Later, points accumulated can be used in exchange for privileges such as watching TV.

If parents decide to implement a positive reinforcement strategy it is important that they be clear about the behavior that is expected from their child in order to earn the reward. Expectations set on the child should be reasonable and age appropriate otherwise you are potentially setting them up for failure.

A Positive reinforcement system or contingency management system works best is the child is able to participate in choosing the rewards they would like to earn. For the positive reinforcement system to work, parents should provide a good balance of social rewards and tangible rewards this will lay the foundation for a positive relationship to develop between parent and child. A critical component of behavioral therapy is implementing the use of positive reinforcement. In order for parents to increase the chances of their child behaving in an appropriate way they must be able to provide positive consequences. Positive consequences include rewards like tangibles or verbal praise.

2. Dietary Treatment

Considering dietary intervention is important for the reduction of symptoms in ADHD, provided that parents are able to stick to following a strict elimination diet. Keeping children on a few foods diet can be difficult to follow over an extended period of time, specifically for older children.

With younger children it is easier for parents to maintain them on a strict elimination versus older children who have more independence. Children with ADHD are most likely to respond to an elimination diet or an AFC (artificial food color) free diet if food sensitivities are suspected. Literature supports
that there is a subpopulation of children who are shown to respond and demonstrate improvement on these diets. Children who are more likely to respond from an elimination diet or an AFC-free diet include: younger children, children identified with IgE-mediated allergies, and children who have irritability and sleeping problems.

If parents note that their children are not responding to standard treatment and are also exploring non-medication treatment, then they should consider dietary interventions.

It is important that families recognize that some children can react to certain foods and food additives with ADHD-type symptoms. Common foods and food additives have not been shown to be the main cause of ADHD, AFC’s (artificial food colors) and benzoate are more of a general public health concern.

For parents who suspect that their child may have sensitivity to certain foods may want to seek out information first from their doctors.

3. Neurofeedback Training

Neurofeedback training or EEG (electroencephalograms) biofeedback has been recognized as a treatment for ADHD individuals since 1979. It is considered an operant conditioning procedure in which individuals are able to self-regulate bioelectrical activity occurring in the brain.

Patients learn to become aware their state of alertness in order to influence it. This occurs through the use of EEG brain wave recordings.

Sensors on the individuals scalp detect brain activity with the use of the computer software. Information appears on the computer screen, which provides feedback to the individual of their current brain activity. The individual is then able to respond to the feedback provided which create changes in the EEG.

Individuals with ADHD demonstrate dysregulated brain wave functioning, and Neurofeedback training allows for low-wave activity (theta) to be inhibited and faster activity (beta) to be enhanced to improve concentration and focus. The individual can chose if they would like visual or audio feedback, sessions last about 45 minutes. Positive changes in either behavior or cognitive performance have noted after at least 20 sessions.

Neurofeedback training can still be used in conjunction with other treatments or when others don’t seem to work. It has been documented that humans can learn to control their brainwaves by the use of operant conditioning. Neurofeedback has been shown through the literature
that it addresses the core symptoms of ADHD, however most of the research has only included children and adolescents.

4. Nutritional Supplementation

Supplementation of macronutrients and micronutrients has been proposed as a treatment for individuals with ADHD. Amino acid supplementation with for example l-tyrosine or l-phenylalanine have been shown to provide temporary improvements in symptoms however results typically only last for 2 to 3 months. It is not seen as a promising long term treatment but could potentially provide relief while looking to and initiating other interventions.

A diet deficient in essential fatty acids have also demonstrated impairment in brain function that lead to symptoms of inattention, distractibility, and poor impulse control. Essential fatty acids that are considered to be helpful are EPA eicosapentaenoic acid and docosahexaenoic acid (DHA) part of the omega 3 family, and gamma-linolenic acid (GLA) part of the omega 6 family.
Unsupported alternative treatments refer to those that haven't necessarily been studied extensively through research, as well as been involved in controlled placebo studies. Most of the information provided in the Alternative Treatments is based on either anecdotal evidence or small studies done in other countries.

**Zinc Supplementation**

Zinc supplementation has been shown to help some children with inattention difficulties due to the fact that zinc is a cofactor in producing dopamine and norepinephrine. Both of these neurotransmitters are linked with ADHD.

Zinc is involved in the metabolism of carbohydrates, fatty acids, proteins and nucleic acids. It is also consider an essential cofactor for over 100 enzymes. Zinc is used in the production of melatonin, the sleep hormone, and dopamine, which is thought to be a factor of ADHD.

It should be noted that zinc supplementation is still being explored as a potential treatment in an American sample. In the Middle East it is documented that zinc deficiency is common and the trials that have been carried out have revealed positive results.

**Homeopathy**

Some studies have reported a decrease in ADHD symptoms in children who have been treated with homeopathic remedies. However most of these studies do not provide a placebo comparison so their findings cannot be considered an evidence base for treatment.

**Herbal Treatments**

Certain Chinese herbs such as ginseng and ginkgo biloba have been known to improve blood flow in the brain. Cases that have reported improvement of ADHD symptoms have been anecdotal.
Grapine is a powerful antioxidant that comes from grape seeds. It has been known to protect cells against different potentially damaging agents. Homeopaths usually prescribe it to individuals who need improvement in memory, concentration, and attention.

St. John’s Wort is another herbal medicine used anecdotally to treat ADHD symptoms in adults. It has been found to be effective for depression more than a placebo, and since antidepressants are usually prescribed to help adults with ADHD, it might benefit those who are diagnosed with comorbid ADHD and mild depression.

Choline Supplementation

Choline is one of the building blocks of acetylcholine which is a neurotransmitter involved in memory. Some studies have found lower concentrations of Choline in children with memory deficits. Deanol is an immediate precursor of choline and is marketed as a nonprescription nutrient for ADHD individuals. It is used to help with hyperactivity and learning problems.

Before considering a supplementation regime it is important that parents and caregiver consult with a doctor first. This will help determine if the child is deficient in any certain vitamins and minerals in order to consider supplementation. Parents and caregivers can also seek the help of a homeopath if choosing the alternative medicine route.
• National Institute of Mental Health [www.nimh.nih.gov]
• Children and Adults with Attention Deficit/Hyperactivity Disorder (CHADD) [www.chadd.org]
• Central for Disease Control- ADHD Data, Statistics, and Analysis [http://www.cdc.gov/ncbddd/adhd/data.html]
• ADHD Together – useful tools and handouts on ADHD [www.adhdttogether.com/adhd-resources]
• Learning Disabilities Association of America [www.ldaamerica.org/parents/]