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# ADHD: The Lifespan and Effects from Adolescence through Adulthood

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ADHD: The Lifespan and Effects from Adolescence through Adulthood

Rhonda Springer

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### Acknowledgements

This dissertation is dedicated to my son Adam. It is because of you that I am sharing the education in which I have learned about ADHD. Our purpose in life is to protect our children. Since you were three years old and diagnosed with this disease, I trusted the doctors and did as they advised me. It wasn't until you were nineteen years old that we found out what damages had been done to your organs from the medications in which I gave you. I remember the day you called and said, "mom I have a massive tumor on my kidney that is attached to my adrenal gland and has damaged two thirds of my liver." Your next words were, "they have to take them all out." I remember praying God please don't let it be cancer. Then we found out that you were the second young person (because it only happens to people 65 years and older) in the United States to have type of tumor. You only had a 20% chance of living through the surgery. I prayed God please just let him live, I can deal with cancer. I will never forget the day of the surgery, I waited and prayed for some kind of update on your progress from doctors or nurses for 10 hours. I remember that surgery taking 5 hours longer than it was supposed to. When I finally spoke to the doctor, they said you were on life support, those were words I was not prepared for. I had to see you for myself and your dad told them if only one can go let it be his mom. I walked in to see that machine breathing for you and all the other machines keeping you alive. My heart swelled as my baby boy lay there at the mercy of a machine. It is breathtaking for a parent, for me, to see your child helpless and you can't fix it. You are the strongest, most brave young man I know to endure and conquer what you have. If your only kidney fails you, you can have mine. I am so sorry that I didn't know then, what I know now. Love, Mom.

## Table of Contents

	Page #
1. Title Page	1
2. Acknowledgment	2
3. Table of Contents	3
4. Abstract	4
5. Introduction	5
6. Problem Statement	5
7. Diagnosis	9
8. Figure I (Kentucky Child and Adult Populations)	11
9. Treatment Types	18
10. Table I (Essential Oils)	20
11. Medication List	23
12. Conclusion	27
13. References	29

### Abstract

The purpose of this paper is to help educate individuals on the choices that aid in the treatment plans, for Attention Deficit Hyperactivity Disorder, that are available and the long term impacts in which treatment could have on their physical body, social life, emotional well being. This paper explores the cause, symptoms, and treatments available for individuals with ADHD.

Current treatment options include medication, essential oils, and multiple therapies that include, fantasy play, cognitive, behavior, etc. This paper, also, identifies the impact of the different symptoms on a gender basis and across the life-span including infancy, early childhood, adolescence, adults, and the elderly. Academic and social supports that are available throughout an individual's time at school (primary through college) are also discussed. This paper also explores the impact on an individual with ADHD's educational and professional experiences in order to look at the disorder as a whole in part and not just it's components.

*Keywords:* Attention Deficit Hyperactivity Disorder, medications, long term effects, brain disorder.

**ADHD: The Lifespan and Effects from Adolescence through Adulthood****Introduction:**

When we think about, or hear, the words Attention Deficit Hyperactivity Disorder (ADHD), we often imagine a child, usually a boy, who is acting out, running wild, and disruptive in our heads. When we see it, we think to ourselves that the parents cannot control their child, he/she is an unruly child, and very undisciplined. When in fact, it is not always the child's fault.

Data from the Center for Disease and Control Prevention (CDC) shows that in 2017, in the United States alone, there were 6.4 million children between the ages of 4 and 17 that have been diagnosed with ADHD, and 237,000 children ages 2 to 5 years. What is happening to our children that so many boys and girls are being diagnosed with ADHD? What are the options for treating ADHD and are there other choices besides medications?

**Problem Statement:**

At the age of three, my son was diagnosed, with Attention Deficit Hyperactivity Disorder (ADHD). I was not educated on ADHD and at that time internet use was very minimal. I only wish that I had more of an understanding of the choices I could have had for my son's treatment. When I took my little boy to the doctor because he was not sleeping at all for several days or nights in a row, I knew something was wrong. So, I made the appointment with his pediatrician.

My son was diagnosed with ADHD and I was told that it was hereditary. This made sense because he shared characteristics with his father (who is hyperactive). I was not given a choice of what type of treatment my son would receive, my only choice was medication. The

doctor did not discuss other treatment options that I later found we could have included therapy, essential oils and diet changes. We all trust our doctors to help us do and make the right choices when it comes to our health. I was sure that I was making the right decision for my child. I was told from the beginning that he would have some side effects: loss of appetite, sometimes irritable, outbursts, etc. After a few weeks on his medication, my son was also diagnosed with high blood pressure. He received medicine for that. Every six months I took him to a kidney specialist to get his kidneys checked because the ADHD medication was hard on them. Every time his doctor assured me that his kidneys were in good condition. It was when my son turned nineteen years old that things changed.

When my son went to the emergency room due to severe flu symptoms, the doctor ordered x-rays of his chest and lungs in order to see if he had pneumonia. He did, but while the radiologist was reading the x-rays, he noticed a mass the size of a cantaloupe on my son's kidney. After further tests, my son was scheduled for surgery on Thanksgiving Day. With his whole torso cut open, from the top of his sternum to the bottom of his abdomen and all his organs laying outside his body, my youngest child was at the mercy of a surgeon. My child had his kidney, adrenal gland and two-thirds of his liver removed and was placed on life support for a period of two weeks. It was not until later that we found out that the mass was due to the medications he had been taking for ADHD. I immediately thought this could have been prevented if only I had had more knowledge about ADHD and knew that I could have had and tried other options first. I was not educated then, but I am now, and hope to educate others so they do not experience what I or my son did. Parent education is vital to keep events like this from occurring to other families.

According to The National Institute of Mental Health Information Resource Center (2016), “ADHD is a brain disorder marked by an ongoing pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development”. There are three key behaviors that one should be aware of in children who have ADHD; inattention, hyperactivity, and impulsivity. Inattention means a person wanders off task, lacks in persistence, usually has difficulty sustaining focus, disorganized (usually a chaotic mess to others, but organized to them). These problems are due to defiance or the lack of comprehension.

Hyperactivity refers to when a person seems to move constantly by fidgeting, tapping body parts or objects or talking excessively and usually out of turn. With adults, it may cause extreme restlessness and they feel the need to keep busy. With a person who is hyper, they find it difficult to not expense energy for long periods of time, therefore, movement is a must. It is like putting a hyperactive child in timeout by putting their nose into the corner and expecting them to stand there and be still, however, they can not do it.

Impulsivity involves a person making hasty actions that occur in a moment without thinking about the consequences of their actions. An impulsive person may be socially intrusive and excessively interrupt others who are talking to make their points known and also make important decisions without considering the long-term effects. The quick decisions may or can sometimes have a high potential for harm. A desire for immediate rewards, as well as the inability to delay gratification, are key aspects of a person being impulsive.

Children who have ADHD often have so much energy that they cannot sit still for very long. They have to expel the energy or they feel like they are going to explode. Imagine this

example: Think of a balloon being filled with helium, when it gets to a certain point that it cannot hold any more air when it gets to a certain point it is going to burst. This is the same with a child who has ADHD and in some cases, adults.

Attention Deficit Hyperactivity Disorder was discovered in the early 1900's, however, the disorder was originally called Hyperkinetic Impulse Disorder (HID). In earlier years, HID was not considered to be an actual disorder. It was not until 1902, that a British pediatrician by the name of Sir George Still, mentioned the words Attention Deficit Hyperactivity Disorder. He described this disorder as, "an abnormal defect of moral control in children." (MyADHD, n.d.c). He found that some of the children were not able to control their behaviors like most normal children could but were found to be smart and very intelligent.

In 1968, the second edition of the American Psychological Association (APA) issued the first Diagnostic and Statistical Manual of Mental Health Disorders (DSM) that listed HID as ADHD. Attention Deficit Hyperactivity Disorder is now considered to be a medical disorder, but the cause is still unknown. (Holland & Higuera, 2017). The DSM is a handbook which is used by numerous health care professionals, throughout the United States and other countries. The current manual has over 360 codes that are used as a source to diagnose mental disorders and contains descriptions, symptoms, and other viable criteria for diagnosing mental disorders.

Attention Deficit Hyperactivity Disorder impacts people across the lifespan. Signs and symptoms typically begin surfacing around the age of five, however, children are not diagnosed until they are at least seven years old. ADHD mostly affects males, however, females are also diagnosed with ADHD. There is a difference in symptoms of attentiveness, hyperactivity, and a

combination of both for males and females. In males, the symptoms are more visible, whereas females are more inconspicuous, and not as discernible. The inattentive type of ADHD is characterized by the following symptoms: easily distracted, appears to not be listening to others while they are talking, unorganized, do not complete daily tasks, scattered, and daydream (Walters, 2016).

In people who have the hyperactive type of ADHD; their symptoms may include fidgeting, cannot be quiet, squirming in their seat, inability to sit still for extended periods, restlessness, always on the go, and they tend to be excessive talkers. For people who have both the inattentiveness and hyperactivity show symptoms of interrupting others, being impatient, and blurting out their opinions. In adults symptoms include anxiety, always being late, forgetfulness, unorganized, moody, depression, impulsiveness, procrastination, relationship problems, substance abuse, addictions to drugs and alcohol (Walters, 2016).

**Diagnosis:**

Researchers have found that different areas of the brain are impacted by ADHD. These areas include the frontal lobe, basal ganglia, caudate nucleus, cerebellum, and other areas of the brain. These areas help to control and regulate behaviors. According to The Center for the Developing Child (2017), executive functions include mood regulation, planning, attention, and memory. The impact ADHD has on these areas of the brain results in people having difficulty attending, focusing, and impulsivity.

The specific cause(s) of ADHD are still being researched and modern science is allowing scientists to learn more about the human body every day. According to (MyADHD, n.d.a), there

are two dopamine genes that researchers believe to be involved in the transmissions of ADHD because it is a hereditary gene. These dopamine genes are called DAT1 and DRD4. According to Pat Levitt, “DAT1 is a membrane-spanning protein that mediates the reuptake of dopamine from the synapse and has been associated with bipolar disorders and ADHD” ( MyADHD, n.d.a). The DRD4 gene is a protein-coupled receptor gene that inhibits adenylyl cyclase. Adenylyl cyclase is an enzyme that takes ATP, energy, and transforms it into a signal transduction. This transduction is the mediator for many physiological activities (MyADHD, n.d.a).

According to MyADHD (n.d.a), 40% of children diagnosed with ADHD inherited it from at least one of their parents. It is thought that the genes that are linked to ADHD come from the father or y chromosome since more males are diagnosed than women. Other indicators that ADHD is hereditary can be found in twin studies; research has shown that in identical twins, both twins have ADHD 82% of the time. In fraternal twins, research has shown, both twins have ADHD 38% of the time (MyADHD, n.d.a). While heredity seems to be the leading cause of ADHD, fetal exposure to toxic substances like alcohol, smoking cigarettes, exposure to lead paint, metal toy cars, and childhood head trauma, from injuries and illnesses, have also been linked to ADHD.

Research has shown a pattern of under-treatment for Attention Deficit Hyperactivity Disorder rather than what was originally thought that too many children being diagnosed with ADHD (Additude, 2018c). The over-identification of ADHD may have been used as a way to provide children with medication(s) that would calm them down. Each year the diagnoses of



Kentucky	Less than age 18	Number	1,021,759	1,018,185	1,016,227	1,014,113	1,011,692
		Percent	23%	23%	23%	23%	23%
	Age 18 and over	Number	3,347,595	3,366,614	3,384,250	3,398,944	3,412,919
		Percent	77%	77%	77%	77%	77%
	Total Population	Number	4,369,354	4,384,799	4,400,477	4,413,057	4,424,611
		Percent	100%	100%	100%	100%	100%

Figure 1. According to the Annie E. Casey Foundation, Percentages of Children under the age of 18 versus adults diagnosed with ADHD between the years of 2011-2015 in just the state of Kentucky in the graph above. According to Centers for Disease Control and Prevention (2018), the diagnosis for children with ADHD varied by state. Statistics showed that Nevada was lowest with a 4.5% of children diagnosed with ADHD while Kentucky had the highest diagnosed rate at 18.7%.

ADHD is not always prevalent in infants, however, signs and symptoms are seen in about 10% of all infants and are often noticeable to parents. These signs may include irritability and the inability to sleep through the night. Infants that may be identified later as having ADHD, often do not like being cuddled for long periods of time. Infants with these symptoms are sometimes referred to as “loaners” meaning they do not like having the feeling of being made to be still, so they want to be left alone. This allows them to be able to move more freely and often.

This particular stage was of interest to me because these behaviors were something in which I noticed in my son as a baby. He did not like to be held by anyone for long periods of

time, he would rather be laying on a blanket on the floor. As he aged I noticed he was more active than my daughter was at this age. I thought nothing of his constant movements, kicking his legs and swinging his arms, because, boys tend to be more active than girls. Then, I noticed that he had problems sleeping through the night. He would fight going to sleep, and finally, he would drift off. He was either extremely restless, or the opposite extremely still. When he did sleep, it would only be for a very short period and he would wake up and be completely revived. I did not know what I was doing wrong, I could not comfort him or satisfy him. As a working parent, tending to a two-year-old, and dealing with a child who only slept for a few hours (if that), was exhausting for me.

ADHD can be extremely difficult for children between the ages of two and a half to five years old because children tend to be overactive, and sometimes even impulsive. When children begin preschool, they, generally, have not been around a large group of kids in classroom settings which require socialization skills and sustained attention for several hours in class for multiple days a week. It is during this time that children are beginning to be molded for educational experiences. In children, the symptoms of ADHD start to become recognizable as the child can not sit still and their attention span is short. Since most children at this age are young, most doctors do not like to put them on medications as of yet. However, if a preschool teacher thinks it is necessary to have a child evaluated because of learning disabilities, shows signs of developmental delay, or attention issues, a teacher can request a child to be evaluated for an early intervention program. This early intervention program is called The Individualized Family Service plan (IFSP). The IFSP program is directed toward children up to two years of age. IFSP helps these children with reaching developmental goals at home and at school. This

particular program does not require a referral. The early intervention program will help to ensure the needs of the child are being met and to help families become familiar with the program before their elementary school years begin. Early intervention works to help to set the child with a growth mindset and familiarize them with classroom responsibilities in order to prepare them for formal education that will begin at a later date. This type of educational plan is usually reviewed every six months (Mychildwithoutlimits.org., n.d.).

The Individuals with Disabilities Education Act (IDEA) is a federal law that requires every state to provide early intervention or Individual Education Plan (IEP) to any student with learning disabilities. Students with learning difficulties and special needs are more often than not, put on a 504 or an Individualized Educational Plan (IEP). An IEP is developed for students ages 3 to 21 years of age. These IEP procedures ensures that children get proper accommodations, or revised plans, to help make their educational experience a success. These plans help to ensure that any child who qualifies will be able to receive that help in order to succeed academically through high school. When a child reaches a college level of education they are still protected under the IDEA for accommodations. However, these accommodations will then be directed through a resource called Students Disability Services. This is true for any person diagnosed with ADHD. Communication between the teacher(s), parent(s) and the doctor is essential, this ensures the child is getting the correct medication and dosage strength. If the medication is working efficiently, the student should show improvement within the first 1-2 weeks of starting the medication(s). A student at this age may also deal with comorbidities. Comorbidities are disorders, diagnosis, or other issues that occur at the same time as the primary problem. Comorbidities could include a learning disability, fear of socialness, anxiety,

depression, and not being accepted by others. These factors should be dealt with before the adolescence stage takes effect (Holland & Higuera, 2017).

The ages of nine and ten, or the time period where children are in elementary school, is where ADHD is most prevalent in their maturity. Children are showing a more chaotic lifestyle at home, constant fighting and arguing with their siblings, and show even higher difficulties in tasks at school. They all too often show frustration and failure in their academic career. These symptoms are usually shown through non-compliant and defiant behaviors. Since children with ADHD tend to be more disruptive in class and have trouble focusing on school work, it may be recommended that they are taken for an evaluation at their regular doctor's office. Children who are diagnosed with ADHD are then usually evaluated at school by a team. This committee consists of the general education teacher, resource teacher, principal, school psychologist, counselor, parents and the student.

During these impressionable times between adolescence and adulthood, some of the main plights of struggling with an ADHD diagnosis is that children may have difficulty focusing on a single task for long periods. Children are easily bored and have to move on to something else frequently. They are usually one of three things: very organized and show some symptoms of being OCD (Obsessive Compulsive Disorder), scattered and unorganized, or they are considered to be an organized mess. Meaning they have things scattered everywhere but know exactly where things are. They usually will not do tasks in the appropriate sequential order. Most people with ADHD can only remember to work on two consecutive tasks at a time. If you give them three tasks at the same time, they will more than likely only complete two of them and forget about the third task.

Research according to Additude (2018c), 75% of boys and 60% of girls that are diagnosed with ADHD will continue to have symptoms of hyperactivity even as they reach teenage years. As children age from adolescence into teenagers, they will show difficulties in education with 21% of them skipping school. Academic failure rates are higher now with 30% failing in classes or they repeat the entire grade (Additude, 2018c). Students at this age are struggling with social surroundings at school and most of the time ADHD children are the ones who are bullying their peers. Schools have higher rates of disruptions in class from ADHD students. At this age rates for academic failure are much higher now, and unfortunately so is the rate of alcohol and substance abuse. During this age, not only does this child have to deal with ADHD, they also have hormonal changes in their bodies as well. These symptoms together make for a difficult time for parents to cope and understand what is going on with these types of adolescence or teenagers. It is unfortunate that 35% of the children diagnosed with ADHD will eventually drop out of school.

New research that has focused on ADHD has shown that adults that in 4.5% of adults that were not diagnosed with ADHD as a child, do have ADHD currently. Adult men are diagnosed with ADHD with a prevalence of 12.9% and women 4.9% (Additude, 2018c). However, fewer than 20% of adults who are diagnosed with ADHD will not seek any form of treatment for the conditions (Additude, 2018c). Many studies focus on issues which are related to the Attention Deficit Hyperactivity Disorder, as well as other psychiatric disorders. The studies are focusing on past and present relations of ADHD symptoms to diagnose adults. Though the prevalence of ADHD is uncertain, as figures vary depending on who the study is being done by and the report of the symptoms.

In adults, symptoms are a little different than that of a child. Symptoms for adults are associated with the presence of other comorbid disorders such as depression, anxiety, and bipolar disorders (Additude, 2018c). When diagnosing an adult, professionals have to factor out other mental disorders because ADHD symptoms also fall into categories of anxiety disorders as well as mood disorders. According to Dr. Sam Goldstein, the picture of adults with ADHD can be very variable. He divides adults with histories of ADHD into three categories: (1) those who seem to function fairly normal as adults although they have had childhood ADHD; (2) those who continue to have significant problems with ADHD as well as life difficulty involving work, interpersonal relationships, self-esteem, anxiety and emotional lability; and (3) those who develop serious psychiatric and anti-social problems and are quite dysfunctional (MyADHD, n.d.c).

Studies show that 30-60% of adults who had childhood ADHD and continue to have ADHD as adults, had problems in being successful in school and rarely achieved a degree more advanced than a highschool diploma (Additude, 2018c). They have problems with their employment status and are more dissatisfied with stationary work. These adults prefer more active, skilled jobs like construction, firefighting, and medical work because they are constantly moving and staying busy. In their social skills, they tend to be impulsive and inattentive. As adults, the gene that is linked to ADHD is passed to their children, therefore, making it difficult to deal with their own ADHD as well as their children's diagnosis. As a parent with ADHD, and having children with ADHD, juggling home life and employment it is necessary to utilize time management skills. Tragically, adults who have an ADHD diagnosis are more likely to be deceased by the age of 45 years old (Additudemag, 2018). This is due to their recklessness and making hasty decisions without thinking how dangerous or what the consequences might be.

As people age, we often think that we are just getting old and cannot function as fast or remember (cognitive impairments) things because of the aging process. However, this is in fact not true in some elderly people. According to Roggli (2018), about 3 % of the elderly population get diagnosed with ADHD. Though there is no Magnetic Resonance Imaging (MRI) Scans or blood tests to determine ADHD, the signs and symptoms are apparent in their cognitive actions. Unfortunately, they have lived and dealt with ADHD their entire lives. Studies have shown that having ADHD is one of the causes for the early onset of Dementia and Alzheimer's Disease in people between the ages of 44-85 years old (Roggli, 2018).

### **Treatment types:**

There are different types of treatments for ADHD: behavior modification, counseling, play therapy, diet changes, cognitive-behavioral therapy, self-control therapy, vitamins, oils, and medications. The therapy technique of behavior modification provides quick responses and feedback to the child that is receiving therapy. As a parent, you need to establish the house rules, rewards for good behavior, consequences for bad behavior, and routines. It may be beneficial to make checklists, during multipart tasks, give the child praise as they complete each part, focus on positive things, and plan for problems to arise (Orenstein, 2010).

Many children, especially when young, do not know how to express their feelings, so play therapy is a great way for them to express and show their emotions. According to Additude (2018a), play therapy uses stuffed animals, doctor kits, and monster figures for children ages 4-6 to be able to express their experience with fears, emotions, and concerns. Fantasy play or Expressive play allows children with ADHD to new experiences but with a safe context. Play

therapy helps young children to consider the consequences of their decision making; as well as teach them to relate play with real-life social skills and to stay on tasks for longer periods of time.

Diet changes are one of the first things we think of when a child is diagnosed with ADHD. There are certain foods that make the symptoms of ADHD worse and others that help to calm the brain and energies in both children and adults. Sugars are the kryptonite for ADHD. Certain food dyes are known to causes for the hyperness in ADHD. According to WebMD (n.d.a), drinking mixtures that contain the artificial food coloring of Sunset Yellow (E110), Carmoisine (E122), Tartrazine (E102), Quinoline Yellow (E104), Allura red (E129), and Ponceau (E124) are a trigger for hyper behaviors. Foods that are high in protein like fish, beef, pork, chicken, eggs, beans, nuts and soy have been shown to have beneficial effects on ADHD symptoms (WebMD, n.d.a) Proteins make neurotransmitters that are used by the brain for communication and helps with surges in the rise and fall of blood sugars, which causes hyperactivity.

Vitamins are a great source for different chemical balances in our daily diets. Vitamin supplements aid in diet plans for ADHD. Our bodies produce certain amounts of natural vitamins, but with ADHD they sometimes get used up or processed faster. Some doctors and nutritionist to take vitamin supplements for ADHD. These vitamins include Zinc, Iron, and Magnesium. According to Additude (2018b), 84% of children diagnosed with ADHD have low levels of iron. Vitamin B reduces aggression and improves their social behaviors. B-6 improves alertness, while Omega-3 Fatty Acids aid in the brain and nerve cell production and decreases ADHD symptoms. Natural herbs increase blood flow to the brain. This helps with alertness

while decreasing aggressive behaviors. Ginkgo and ginseng are brain stimulants and help aid in decreasing distractions and making impulse decisions. Pycnogenol sharpens the attention, concentration and visual motor skills. While Rhodiola Rosea improves alertness and accuracy and attentiveness, it is most effective in Middle school, high school, and college students (Additude, 2018b).

Oils are another type of aid for ADHD. According The Understood Team (n.d.), Essential oils are aromatic plant extracts that have been used for many years to help in reducing symptoms of ADHD, physical and mental health, cosmetic effects, and spiritual purposes. These oils are usually concentrated to use on the skin but have also been diluted for inhalation purposes and in diffusers. Though it is not known for sure how these oils actually work, it is thought that essential oils send chemical messages to the brain that controls our moods, and emotions (Understood Team, n.d.).

If you are considering using oils as a form of ADHD treatment, Mercola (n.d.), recommends these oils for specific traits. These should be applied on the wrists and behind the ear.

Essential Oil Name	Uses for Attention Deficit Hyperactivity Disorder
Cedarwood	Oxygenation of the brain
Vetiver	Calm and balance the nervous system while stimulating the circulatory system. Calms the mind

	Alertness and activity in the brain
Rosemary	Speed and Accuracy
Lavender	Aids in sleeping, calming and anxiety
Ylang Ylang	Relaxing properties
Frankincense	Mental peace and calmness
Bergamot	Reduces the feelings of stress and anxiety
Eucalyptus	Relieves mental exhaustion and stimulates blood flow to the brain
Lemon	Improves moods and prevents emotional outbursts
Peppermint/Mandarin	Use in calming
Sandalwood	Relieves stress
Basil	Relieves tension mental fatigue, and depression
Valor	Depression
Patchouli	Soothes the nervous system and promotes quality sleep

According Mercola (n.d.), kids who inhaled vetiver 3 times a day for 30 days showed improvements in brain functions and their behaviors improved while they were at school. Their research shows that when essential oils are inhaled, the micro droplets are transmitted to the limbic system of the brain; which is the processing center that is for our reasoning, emotions and smell. This oil is also for aiding in hormones which are secreted from the hypothalamus, and also the lungs when the oils enter into the circulatory system.

People also use a diffuser to get the essential oils into their system. This process is stimulating and beneficial for memory and learning processes. These small compounds spread the aroma throughout the nasal and lung mucosa and into the blood brain barrier that have the potential of producing effects directly to receptors sites and indirectly on enzyme activities (Mercola, n.d.). Other methods of use is using lava stone bracelets by adding a drop of preferred oil to each bead and letting it absorb into the skin. These are long lasting and aid many different areas of the body. The other type of bracelet is a diffuser bracelet, which sends out an aroma of oils each time the bracelet is in motion. This type of bracelet is beneficial for a child to use. It is fashionable in color and not embarrassing for students. They are able to use their oils without being called out of the room for taking a medication (Mercola, n.d.). Misting sprays are also used with aromatherapy. Sometimes a drop of oil is too strong for people who are sensitive to smells so they can use the misting sprays that are diluted and have the same effects of the oils but for shorter periods of time (Mercola, n.d.).

Medications have been shown to have the most impact on behavior, therefore, most parents choose this option. In the past, studies have also shown that medications account for the quickest improvement in behavioral activities at home, school, and in social activities

(MyADHD, n.d.b). Though many times the first medication a child is put on does not always work. It takes several attempts to get the right medication to be effective. There are a few factors in which medication has to meet in order for it to work correctly. Most ADHD medications are based on a child's weight, height, and age as to what strength they are started on. It may be necessary for a child, or adult, to try 3 or 4 different ADHD medications before they find the right combination that works with their body. Each person is different in how their systems reacts to medication. Once an individual has acclimated to their medication and their height or weight changes, so does the dosage of medication that is needed to help with their symptoms.

### **Medication List**

The first medication for ADHD was given in 1936. The U.S. Food and Drug Administration (FDA) approved Benzedrine as a medication for children who have ADHD. It was the next year that a Dr. Charles Bradley noticed side effects of this drug. He noticed that children who were taking Benzedrine were doing better in school demonstrated by an increase in their ability to pay attention, not being so antsy and disruptive in class (Holland & Higuera, 2017).

In 1955, Ritalin was introduced as the first medication to treat ADHD. Ritalin was considered a Psychostimulant. This drug was more popular and seemed to be more effective than other methods of treatment (Holland & Higuera, 2017). Although, this drug is still used today there are many other ADHD medications readily available such as Adderall, Adderall XR, Concerta, Dexedrine, and Daytrana just to name a few (WebMD, n.d.b). Short-acting

medications are pills taken and are released immediately into the bloodstream and only last about 4 hours. The extended-release pills and patches are medications that release gradually and throughout a 14 hour period.

People all too often trust that the medications that are prescribed by doctors are the best thing for us. What people read on the pamphlets, (which is included with the medication prescribed) are the short-term effects of the drug. Information about the long-term effects of the medications is not disclosed in the pamphlet or discussed by the prescribing physician. Though all medications have side effects, people need to be educated on the short and long-term effects of ADHD medications.

The stimulant medications for ADHD can be very effective in reducing symptoms. However, if the dose is too low there will be a minimal difference in behavior and attention span. However, if the dose is too high, you will notice the sedated “zombie” stage or moodiness. The goal of medications is to get the most benefits with the least side effects. However, there are experiences of side effects for short-term and long term for all ages. The short-term side effects of ADHD medications for Ritalin, Adderall, Concerta, Dexedrine (pills form) and Daytrana (patch) include loss of appetite, headaches, weakness, blurred vision, dizziness, insomnia, restlessness, irritable, agitated, hair loss, constipation, diarrhea, fever, stomach pain, weight loss, anxiety, nausea, vomiting, nervousness, sweating, and skin rash or splotches, tics, delayed growth. These are to just name a few of the most common side effects that are most prominent in reported findings. (RxList, n.d.a) Children who are prescribed any of these medications usually will suffer from the side effects of loss of appetite, loss of weight, headaches and

stomach pains. My son had these side effects along with the skin splotches and delayed growth. Not all will experience these side effects.

Some of the more serious long-term side effects include; suicide, anxiety, depression, social behaviors, cardiac issues, weight loss, sleep disorders, seizures, drug addictions and organ failures (WebMD, n.d.c). Some people have had skin discoloration which are dark skin patches with discoloration of the skin which can cause chemical leukoderma. This condition causes permanent loss of skin pigmentation any where a patch of medication (Daytrana) for ADHD has been placed. For cardiac issues may have signs of irregular heart rhythms and congenital heart disease later in life. With those who suffer from depression, they often start with anxiety, followed by anti-social activities. They next fall into a deep depression and finally thoughts of suicide.

An adverse reaction to ADHD medications that can occur is a severe form of muscle injuries and kidney damage called Rhabdomyolysis. Rhabdomyolysis, which my son had, breaks down the striated muscles in the kidneys. Once these muscles break down they release a protein called myoglobin that flows in and out of the bloodstream. Due to the inability to filter the myoglobin properly, the proteins ultimately damage the kidneys, which inevitably causes organ failures. Rhabdomyolysis usually occurs in people ages 65 and older, but my son was the second young person, at nineteen years of age, to suffer from this severe type of side effect. These are considered to be a serious side effect, because the organs, most often, need to be removed surgically. Very serious conditions may include an increase in serotonin and may cause a life threatening condition called serotonin syndrome/toxicity. If someone who is taking medications for ADHD and they experience fast heartbeats, hallucinations, loss of coordination,

dizziness, severe nausea, vomiting, or diarrhea they should seek emergency help immediately (WebMD, n.d.c).

People who have an addiction or substance abuse tend to misuse their ADHD medications. With medications like Ritalin and Adderall, substance abusers will crush their pills and snort them, which can lead to an accidental overdose or even greater, cardiac arrest. Sometimes, college students who are on these medications sell their prescriptions to other students. Those who buy prescription drugs are the more likely to be hospitalized for a drug overdose. There are some ADHD medications that have been known to cause Psychiatric problems and some can add to more stress and anxiety which lead to mood swings and psychosis-like hallucinations and paranoia. These effects usually lead to criminal activities.

There are many links between ADHD and criminal activity. There are implications that childhood ADHD diagnosis leads to adults getting more speeding tickets, be involved in more accidents, and bodily injuries than non ADHD people (Goldstein, S., 2017). From my personal experience, with my son, teenagers with ADHD have a need for speed attitude, they want to have control of something. They are more likely to drive a car before they get their driver's license. Teenagers and adults who have been diagnosed with ADHD are prone to alcohol and drug abuse, and have more criminal activities than the general population. If we took a poll in the jails today we would find that most of them would have been diagnosed with ADHD as a child. Many are high tempered, aggressive, and may have made hasty decisions which landed them jail (Goldstein, S.,2017).

Although people who are diagnosed with ADHD may be antisocial in conversations, they will walk around checking everything and everyone out in a room. One of the first things an ADHD person will scope out when they enter a room is an escape route. They need to know where the quickest exits are. They will pick out of the crowd who is a threat to them and who is not. These observations also apply in the workforce. These were characteristics that I noticed in my son when we were out and when he was at work.

In some adults with an ADHD, diagnosis show how their jobs are affected by this disorder. Because of their diagnosis they are often distracted therefore, they lose track of time which results in being late for work, have problems focusing on one task and are not usually capable of multitasking. They are easily distracted, quickly become unfocused, may have difficulty with time management, poor planning, and become restless. Most often when situations or problems arise they are quick to get frustrated and want to move on to something new. Not all cognitive effects are bad. Most are eager learners and thrive when successful at completing tasks. Many employees who have ADHD like to work fast and get things done. Many are successful in their jobs and have learnt to manage their ADHD and what processes works best for them.

## **Conclusion**

ADHD is an invisible disability, one that is not visible like tics or tremors from tourettes. It is an active volcano inside that is ready to erupt with uncontrollable urges, outbursts, impulsivity, and frustrations. You know it is going to happen you just do not know when. For many years ADHD has been blamed on poor parenting skills, or someone who has a lot of

energy to burn. When, in fact, this is not always the case. Millions of people struggle everyday with this disorder and, fortunately, it is treatable. Today, there are many different methods of aiding in the treatment of ADHD. The options in which we have today versus 25 years ago are abundant.

Though the treatments are different between children, adults and elderly, you may consider and research each option that is available. Not every form of treatment works for everyone. If you are considering treatment for a child who has been diagnosed with ADHD and are considering medication for that treatment, take the time to learn about ADHD. Study what kinds of effects ADHD has on the brain. Learn about the long term effects on the body and organs over long periods of use from the medications. Educate yourself on the different alternatives and try some of the more simple solutions before you make the decision to put a child on medications. Carefully read the side effects and the long term effects in which your choice would have on that child.

For teenagers there are chances that they will outgrow some of the symptoms. For the ones who were put on medications may have an opportunity to discontinue the use, because their symptoms are manageable now. As we age, we learn to have better self-control and are able to manage and cope with ADHD. For the elderly, make sure that whatever method of treatment is chosen does not interfere with medications they are currently taking for other health problems. At the same time do not let ADHD go untreated, the damage is far greater when you do nothing at all.

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