

SCHOOL EXPERIENCES OF NON-MEDICATED CHILDREN DIAGNOSED
WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER

by

Nathan Steenport

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Committee Members:

Patricia Guerra, Chair

Barry Aidman

Stephen Gordon

Maneka Brooks

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DEDICATION

I would like to thank my wife, Christine, for being behind this study for the past five years. Over this time she has supported me with time and patience and, without her, this study would not have been possible. I would also like to thank my parents for always believing in me and instilling in me a hard-work mentality.

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ABSTRACT

The purpose of this study was to understand the school experiences and educational outcomes of young adults diagnosed with ADHD who utilized alternatives to ADHD medication to mitigate their symptoms throughout their public school years. Eight freshmen from a university in the southwest participated in this study over the summer of 2018. This qualitative study employed a constructivist analytical paradigm and a phenomenological theoretical perspective to understand the lived experiences of each participant. Data collection involved guided interviews, follow-up interviews, and memos. Findings revealed the participants diagnosed with ADHD in this study had positive school experiences and outcomes as the result of parent and educator support and the use of exercise as an alternative to ADHD medication. While parents provided communication with teachers, organization, and tutoring, teachers utilized classroom accommodations like preferential seating, tutoring, and organization to support students from elementary to high school graduation. This dissertation contributes to the growing literature on alternative treatments for children diagnosed with ADHD and sheds light on their school experiences and outcomes. The findings may support children diagnosed with ADHD, parents, educators, educational leadership faculty, and educational policy makers to consider alternative treatment options for students diagnosed with ADHD.

I. INTRODUCTION TO THE STUDY

Prelude

As a young child, I struggled to pay attention in school. It was difficult to focus in class, my grades were typically lower than my peers, and the schoolwork became harder as I progressed to higher grade levels. I did, however, have a knack for sports and the outdoors. On weekends, it was common for me to be gone all day playing basketball with my friends and building forts in the woods. I was a typical, happy child from a well-to-do middle-class family.

As I progressed through elementary school, these academic struggles kept me on the verge of failing assignments and standardized tests. My teachers constantly had to tell me to do something two or three times and concentrating for more than five to ten minutes was about all I could manage before something else distracted my attention. Trying to fit into the one-size fits all model of whole group teaching was not the best way for me to learn nor was it beneficial or helpful to work in small groups as a means of enhancing my ability to focus my attention. My friends were all much more successful in class; I was the one who did not do well in school. Needless to say, neither my friends nor teachers thought I could achieve better than a C on any assignment. This hurt my self-esteem and made me believe a C was the best I could do. I felt stupid and thought something was wrong with me.

My parents, on the other hand, started to recognize my school difficulties and began working with me on academics at home. I have fond memories of working on spelling words with my mother at the dining room table and making projects for school.

My parents supported everything I did, which helped me improve my grades, especially on home-based school projects. While they made me do the work, they helpfully guided me through the thinking process to encourage me to consider various options before submitting my work. To celebrate my first A on my report card, my father even took me out to the best restaurant in town. Although I continued to struggle in school, I finally believed I could do better than a C. On the recommendation of my third-grade teacher, my parents took me to a pediatrician to diagnose my attention and cognitive ability issues. My parents, much like many others, understood the importance of a quality education and felt it best to seek the advice of a pediatrician for more information on how to help me.

With the evidence presented by the Attention Deficit Hyperactivity Disorder (ADHD) screener, the pediatrician suggested I begin taking Ritalin, a methylphenidate commonly used in the 90s to help people manage ADHD symptoms. The pediatrician educated my parents on the drug and told them to watch for common side effects like loss of appetite, difficulty sleeping, and mood swings. Though my parents were a bit hesitant to give medication to a young child they knew I needed to perform better in school to enhance my likelihood of success later in life.

As soon as I began taking Ritalin, my life changed dramatically. I felt an ability to focus intently on everything I did. The teacher reported this much-improved ability, which was accompanied by a significant improvement in academics. The side effects, however, were socially and physically crippling. On a daily basis, I felt like a walking zombie; I was not able to have meaningful conversations with friends, I was socially awkward, I no longer felt like a kid, and I lost interest in food. Being a quiet child, I did

not say much to my parents about these negative side effects. When I got to high school, these problems worsened. I allowed people to make fun of me, lost weight during times when I should have been getting heavier and did not enjoy social school activities with my friends.

After my first semester in college, I felt that I needed to learn to do my schoolwork without using Ritalin. I could not bear the thought of having to rely on medication just to function in an academic setting. During the first year without medication, I struggled immensely with my studies. I had to re-learn how to study because the methods I had become accustomed to while using Ritalin no longer worked. Thankfully, the friends I had made in college were all very active. Every day we would go to the gym to work out, run on the track, or play flag football. Over time I discovered it was easier to focus on my studies, particularly after exercising, and my grades began to improve. After more than a year of grades that were close to failing I realized my love of exercise could reinforce my ability to pay attention in class and, much to my happiness, without the side effects. For the first time in my life I could function in both academic and social contexts.

Now, as an elementary school principal, I feel compelled to be mindful of children who have been diagnosed with ADHD. Although physical activity may not work for every child with ADHD, it is important to consider each child's individual circumstances and provide personalized treatment that works best for each individual child. Based on my own school experiences both as a student and elementary school principal, I know that providing various teaching techniques can dramatically improve children's experiences in school. In addition, when hiring teachers, I look for those who

support the learning of each child regardless of disabilities. These teachers encourage not only students diagnosed with ADHD, but all students with or without disabilities. With this research study, it is my hope to bring these school experiences and outcomes of children diagnosed with ADHD to light to inform children with ADHD, their parents, and educators serving students with ADHD to assist them in making an informed choice about treatment.

Introduction to ADHD

Attention Deficit Hyperactivity Disorder (ADHD) is the most researched mental neurological disorder in children (Faraone, 2002). It is typically characterized by difficulty paying attention, controlling behavior, and having a high level of excessive activity (National Institute of Mental Health, 2016). Specifically, people diagnosed with ADHD have impairments in executive functioning or cognitive processes that are necessary to control behavior and employ cognitive behaviors to achieve particular outcomes or goals (Malenka, Nestler, & Hyman, 2009). While short-term memory retrieval is impaired by ADHD, long-term memory retrieval is unaffected unless there are issues with working memory (Brown, 2009). Due to a higher level of executive functioning demands as children mature ADHD may not fully manifest itself until later in adolescence or even early adulthood (Brown, 2009). While most causes of ADHD are unknown, some cases have been linked to genetics, environment, and brain trauma (Thapar, Cooper, Eyre, & Langley, 2013). Currently, there are three types of ADHD: (a) primarily inattentive: showing signs of daydreaming, being easily distracted, or evidencing poor concentration and difficulty completing tasks; (b) primarily hyperactive: showing signs of excessive fidgeting, issues with sitting still, or immature and destructive

behaviors; and (c) combined type: encompassing symptoms of both inattentiveness and hyperactivity (Centers for Disease Control [CDC], 2013).

Statement of Problem

Children are diagnosed with ADHD at a much higher rate today compared to ten years ago. Visser et al. (2014) suggested the increase is due to “increased awareness, better detection, educational policies, physician characteristics, cultural factors, and changes in public perceptions” (p. 44). The CDC reported that nationwide, students diagnosed with ADHD increased from 7.8% in 2003 to 11% in 2011 (CDC, 2013). Research has shown that at least one student in every classroom in the United States has ADHD (Froehlich, Lanphear, Epstein, Barbaresi, Katusic, & Kahn, 2007). Children diagnosed with ADHD struggle not only academically, but also tend to have strained relationships with teachers and peers due to difficulty controlling behaviors (Barkley, 2014; DuPaul & Stoner, 2003). Researchers have found that children who are susceptible to ADHD (diagnosed or undiagnosed) exhibit poor standardized test scores in math and reading and are more frequently retained in-grade (Loe & Feldman, 2007). Specifically, educational outcomes of male high school students showed lower GPAs, higher levels of remedial placement, and higher levels of course failure (Kent et al., 2011). In addition, children diagnosed with ADHD also exhibit behaviors that lead to higher stress levels in teachers compared to students without ADHD (Greene, Beszterczey, Katzenstein, Park, & Goring, 2002). Ghanizadeh, Bahredar, and Moeini (2006) also reported strong correlations between teacher’s degree of knowledge of ADHD and ensuing attitudes of blaming parents for the student’s ADHD and that behavioral disturbances caused by students with ADHD were deliberate. In other words, inadequate knowledge of ADHD

may reinforce negative teacher attitudes toward students with ADHD. The ability to compassionately structure learning situations that minimize the classroom impact of ADHD is the product of a deeper level of knowledge and understanding of the condition. In summary, Barkley, Fischer, Smallish, and Fletcher (2006) stated, “By adulthood, hyperactive children have been found to have less education, achieved lower grades, failed more of their courses and were more often retained in grade or failed to graduate than control [children without ADHD] groups” (p. 192).

In an attempt to control ADHD symptoms and their academic impact, studies have demonstrated that prescribing ADHD stimulant medication has been the most commonly used and effective way to curb ADHD symptoms in children (CDC, 2103). As of 2012, large-scale studies indicate around 69% of children diagnosed with ADHD take ADHD prescription medications (Visser et al., 2014). The CDC (2013) also reported that children taking medication for ADHD increased from 4.8% in 2007 to 6.1% in 2011 (2013). ADHD medication has been shown to improve sustained attention, decrease distractibility, improve timely completion of tasks, and to be more effective than just behavioral treatment alone (Swanson, Baler, & Volkow, 2011). Research by Marcus and Durkin (2011) has shown medication has produced marginal increases in GPA and that school experiences tend to be more positive than negative (Singh et al., 2010b). Adversely, several studies have shown that ADHD medication can also induce chronic mood swings (Moncrieff & Timimi, 2010), social anxiety (Lee, Falk, & Aguirre, 2012), and appetite suppression (Kiddie, Weiss, Kitts, Levy-Milne, & Wasdell, 2010), which in turn can lead to weight gain when a child is taken off ADHD medication. Parents, therefore, are confronted with weighing the options of potential positive and negative

experiences of taking ADHD medication against the experiences and outcomes of children diagnosed with ADHD.

Natural and alternative methods to medication have also been used for people who do not see any benefit from ADHD medication (Ramsay, 2010). Some of these approaches have included brain games (Wegrzyn, Herrington, Martin, & Randolph, 2012), complementary and alternative biomedical treatments (Hurt, Lofthouse, & Arnold, 2011; Pellow, Solomon, & Barnard, 2011), and non-stimulant medications (Wood, Crager, Delap, & Heiskell, 2007). Although the long-term consequences of these alternatives to ADHD stimulant medication need further investigation and corroboration, conventional methods like medication and behavioral therapy are recommended if alternative methods are unsuccessful (Brue & Oakland, 2002).

One area receiving less attention in the literature are the school experiences and outcomes of children diagnosed with ADHD who did not take stimulant medications to treat their symptoms. As a result, knowledge and understanding of their experiences is less clear. Nonetheless, approximately 17.5% of children age 4-17 who have been diagnosed with ADHD do not take medication as a way to mitigate their symptoms (CDC, 2013). Studying this segment of the ADHD population has provided insight into their school experiences and added to the limited literature that currently exists.

Conceptual Framework

A conceptual framework deriving from the literature on students with ADHD guided the implementation and collection and analysis of data for this study. I developed one due to the lack of theoretical frameworks or conceptual models that exist on this topic. Parent knowledge of ADHD and/or support, teacher knowledge of ADHD,

comorbidity of other physiological diagnosis, peer interactions and relationships, and type of treatment are factors which comprised this conceptual framework. Parent knowledge of ADHD affects children because their interpretation of the condition, specifically with behavioral interventions, can directly affect how a child experiences school (& Hansen, 2006). Mothers and fathers may differ in their interpretation of supporting children with ADHD (Bull & Whelan, 2006) and if or when parents decide to take action, their adherence to the treatment is critical to successfully mitigating ADHD symptoms based on the prescribed treatment (Hansen & Hansen, 2006).

Teacher's knowledge of ADHD also plays a significant role in the diagnosis of ADHD (Sax & Kautz, 2003) and their knowledge of interventions like behavioral support can directly affect the child's school experiences (Arcia, Frank, Sanchez-LaCay & Fernandez, 2000). Teachers report initial ADHD symptoms as frequently as parents (DosReis et al., 2007) and their feedback regarding diagnosis and subsequent treatment is also important to the success of the child's treatment (Del Mundo, Pumariega, & Vance, 1999). Children with ADHD may also have a comorbidity, an additional diagnosis in conjunction with the primary (First, 2005), of other physiological conditions that correlate to their school experiences (Subcommittee on Attention-Deficit/Hyperactivity Disorder, 2011). Specifically, children with ADHD are often diagnosed with anxiety or depression (Weiping & Lixiao, 2015) or even misdiagnosed with a behavioral disorder or learning disability (Schoemaker et al., 2012).

Peer interactions and relationships can be strained due to the child having ADHD (Singh et al., 2010b). Wilson (2013) reported that the stigmatization of ADHD can lead children into being classified as different from the social construct norm of children

without ADHD. Lastly, students diagnosed with ADHD can be presented with a myriad of treatments that directly affect their school experiences. Behavioral therapy, while not as effective as medication, typically is the first line of treatment options for children diagnosed with ADHD (Oortmerssen et al., 2013). Other, more popular and effective treatments are those that utilize medication to treat ADHD symptoms (CDC, 2013). Many researchers believe the most effective treatments combine both behavior and medication, but very few children actually receive both (Pfiffner, Barkley, & DuPaul, 2006). Although the conceptual framework guided the study, I also identified other variables within participants' sociocultural environment that were factors in their school experiences.

Purpose of Study

The purpose of this study was to explore the school experiences of young adults who pursued alternative ways to mitigate ADHD symptoms in elementary school. The primary research question guiding this study was: What were the school experiences and educational outcomes of students diagnosed with ADHD who did not take ADHD medication? It is supported by the following subordinate questions:

1. What were the decisions regarding the use of ADHD medication?
2. How did participants control their ADHD symptoms during their school years?
3. What were participants' relationships with parents, peers, and educators during their school experiences?
4. What support was provided in school and home?

5. What were the educational trajectories of participants over time as they managed symptoms through non-medicated means?
6. What were the differences in participants' school experiences and outcomes by race/ethnicity, gender, socioeconomic status, and/or cultural background?

Significance of the Study

This research has added to the growing literature on the school experiences and outcomes of children with ADHD who were provided non-medication intervention. The findings of this study supports school improvement efforts in that they assist school leaders, educators, and parents in making more informed decisions regarding the cognitive and social needs of students with ADHD. In addition, the study increases educators' awareness about the support they can provide to students who choose not to take ADHD medication to improve students' school experiences.

Scope of the Study

A phenomenological approach was used to explore the lived experiences of individuals diagnosed with ADHD who were provided alternative ways to mitigate symptoms and the long-term efficacy of their choices. The purpose of phenomenological research is to "reduce individual experiences with a phenomenon to a description of the universal essence" (Creswell, 2013, p. 76). Through purposeful criterion sampling, eight participants were carefully chosen to ensure the data are valid, comprehensive, trustworthy, and can perhaps be transferred to other similar population segments (Polkinghorne, 1989). Purposeful criterion sampling (Patton, 1990) is typically used in information rich areas in which "one can learn a great deal about issues of great

importance to the purpose of the research thus the term *purposeful* sampling” (p. 169). Each participant was a young adult over the age of 18 and represented various genders, race, ethnicity and/or socioeconomic status. Participants were diagnosed with ADHD sometime in elementary school and did not take ADHD medication throughout their remaining public-school years.

Descriptive data were collected through guided interviews (Lichtman, 2012) that explored factors which drove the choice to pursue non-medicated methods to control symptoms and the impact of this choice on symptom management, relationships, academic achievement, and to determine whether there are identifiable differences between genders. Participants were asked to give an accurate and reflective understanding of their past school experiences. Their stories provided rich, deep information about the phenomenon being studied and its particular features (Creswell, 2013). I also maintained an ongoing journal of field notes (Ravitch & Riggan, 2012) to capture meaningful reactions, body language, hesitations or enthusiasm, and to make note of responses that need additional clarity. Once qualitative data had been collected, a phenomenological approach (Creswell, 2013) was utilized to evaluate the data and to search for common phenomena experienced by the participants. I also used bracketing (Creswell, 2013) to avoid bias and present a clear picture of others’ experiences without ADHD medication.

Limitations and Delimitations

Limitations

This study included participants who were already in college. Based on this factor alone, one could infer that they all had positive school outcomes. Finding participants in a college setting was purposeful as all emails were sent to students at a university in the southwest. Thus, these study findings are limited to college students; research among individuals outside of college could certainly produce different results. In addition, after questioning each participant about their subjective social status, I found the majority were from middle class homes with only one from a working class (American Psychological Association, n.d.). These considerations, as well as race/ethnicity, and gender, were not criteria for this purposeful sample. Due to the personal nature of the study, school experiences shared by participants may have been repressed. These experiences may have been difficult to talk about, especially to a researcher they hardly knew. Another potential limitation was relying on participants' memories of experiences and situations that were over a decade old. Memories and thoughts can be misconstrued over this length of time. In addition, participant's parents, educators, and friends who could provide more of an accurate perspective were not interviewed because they were outside the scope of this study.

Only eight participants were part of this study. Generalizing results to other settings or groups was not the purpose of this study since these participants may not be an accurate representation of a larger population. Further, because I was also a child who lived with ADHD throughout my schooling years, my negative experiences had to be checked on a regular basis to ensure non-biased results. Reasonable efforts were made,

however, to ensure participants were not made aware of this throughout the study for accurate results.

Delimitations

Delimitations were set specifically for this study in order to narrow its scope (Creswell, 2012). The first delimitation was to narrow the focus on individuals who did not take ADHD medication. This purposeful decision was driven by the lack of literature on this topic. This decision may have reduced the ability to transfer findings to other similar populations. Nonetheless, I chose not to address these variables, as it would have made the study too broad. An online site for participant selection was chosen because it facilitated identifying individuals who satisfied study criteria and who were willing to participate. Attempting to find them locally would have been far too time consuming and difficult given the narrow focus of this study.

Definition of Terms

The definitions utilized for the following study are:

- *Attention span.* The Merriam-Webster (2004) dictionary defined attention span as the amount of time one is able to concentrate or remain interested.
- *Comorbidity or comorbid condition.* First (2005) defined comorbidity as the presence of more than one diagnosis at the same time which does not imply multiple diseases, but the inability to give a single diagnosis based on many symptoms.
- *Executive Function.* Malenka, Nestler, and Hyman (2009) defined executive function as a set of cognitive process that control behavior

which includes attention control, cognitive inhibition, inhibitory control, working memory, and cognitive flexibility.

- *Hyperactivity.* The National Institute of Mental Health (2016) defined hyperactivity as someone who moves around constantly especially in instances that are not appropriate, excessive fidgeting, tapping, or talking.
- *Impulsivity or impulse control.* The National Institute of Mental Health (2016) defined impulsivity as someone who does or thinks hastily without thinking about his/her actions, which may have the potential for harm and the desire of immediate rewards or gratification.
- *Inattention.* The National Institute of Mental Health (2016) defined inattention as a person who is off task, has difficulty focusing attention on tasks, and is disorganized.
- *Non-stimulant medication.* Rosen (n.d.) defined non-stimulant medication as newer options to stimulant medication that affect neurotransmitters called norepinephrine, which play a role in executive functioning. Though not as successful as stimulants they are prescribed by doctors when stimulant medications have not worked or caused unwanted side effects.
- *Stimulant Medication.* The Food and Drug Administration (2011) defined stimulant medication as the most common way to treat Attention Deficit Hyperactivity Disorder that increases the ability to focus, specifically in impulse control disorders.

Organization of the Remainder of the Study

Chapter II first reviews the history of ADHD to give the reader a historical background. Next, a discussion of how children with ADHD are diagnosed, presented from the perspectives of schools and parents is provided along with a description of various treatment options is included. Lastly, the conceptual framework is reviewed to substantiate the basis for the study.

Chapter III discusses the methodological approach to validate the reasoning behind selecting a phenomenological qualitative study. The analytical paradigm informs the reader about the study's epistemological views and research design. Lastly, this chapter includes participant selection measures, the theoretical approach to guide data analysis, and considered points to obtain the most accurate qualitative data for this study.

II. LITERATURE REVIEW

Introduction

This chapter reviews the background to ADHD, various methods to manage ADHD symptoms, links related to diagnosis or comorbidities, and research regarding school or parent interventions that support children diagnosed with ADHD, and children's experiences in school and their individual lives. While the majority of research and literature reviewed covers these subjects extensively, it lacks qualitative evidence of school experiences and outcomes of children living with ADHD who did not take stimulant medication. The first portion of the chapter contains the history of ADHD, including diagnostic methods and various interventions. The second section discusses what schools and parents are doing to either implement ADHD interventions or their reasons for not implementing them. In the final section, I review potential harmful effects of ADHD medication linking studies back to both clinical and educational settings.

History of ADHD

ADHD has affected students since the inception of schools (Elliott & Kelly, 2015). The first recorded description of ADHD occurred in 1775 by Melchior Adam Weikard, a German writer, who described patients as being inattentive, distractible, and possessing a general impulsivity. In the 1800s, well known physicians like John Haslam and Benjamin Rush began noting some children were unable to control themselves, labeling them as abnormal "creatures of volition and terror of the family" (Barkley, 2014, p. 199) who possessed the "total perversion of moral faculties" (Barkley, 2014, p. 359). In 1902, George Still coined the term ADHD when he conducted the first study of 43

children in a clinical setting who exhibited an inability to focus and sustain attention. Still observed many of these children exhibited behavior issues, stating they were aggressive, defiant, and excessively emotional or passionate. Still found children diagnosed with ADHD lacked or were deficit in at least one of three things: (a) cognitive relation to the environment, (b) moral consciousness, and (c) inhibitory volition. He also found that these behaviors were more common in males, occurring at a ratio of 3:1 compared to females and were most typical around the age of eight. In 1957, children diagnosed with ADHD symptoms were deemed to have a hyperkinetic impulse disorder, (e.g., a deficit in the central nervous system), particularly in the thalamic area of the brain (Laufer & Denhoff, 1957). Because of this prognosis, it was generally thought the possibility of managing inattentive, hyperactive behaviors was extremely slim and the only viable means of suppressing these symptoms in school was to reduce stimulation within the classroom (Barkley, 2014).

The 1960s brought more research which challenged the notion of minimal brain dysfunction (MBD) for children based on the findings of research studies conducted with children who did not have a history of brain damage (Barkley, 2014). Specifically, this critical research concluded the presence of neurological issues did not necessarily indicate brain damage (Birch, 1964). In 1966, the National institute of Neurological Diseases and Blindness found that MBD had around 99 various symptoms, thereby causing the MBD classification to become outdated (Clements, 1966). From this point, research shifted its focus away from brain dysfunction to investigate a hyperactive disorder (Barkley, 2014). Researchers classified hyperactive children as those who carry out normal tasks at a faster rate than those who were not hyperactive (Chess, 1960). The

same research also concluded children with this hyperactive disorder did not perform well in school, typically exhibiting short attention spans and even defiant behaviors.

In the United States, researchers abandoned the traditional conclusion of brain damage, adopting the idea that the short attention span indicated a behavioral disorder. Researchers in Britain continued to espouse the concept of brain damage as the primary cause of ADHD behavioral issues and subsequent diagnosis (Prendergast et al., 1988). By 1969, it was commonly agreed the condition was a brain dysfunction disorder moving the focus away from brain damage, to brain mechanisms (Barkley, 2014). By this time, most professionals believed children outgrew symptoms by puberty and typical treatments consisted of stimulant medication, psychotherapy, and accommodations such as reduction of stimuli (organization, removing objects to focus on a particular task) in class (Barkley, 2014).

The 1970s ushered in an age of incredible advancement in clinical research into this hyperactive disorder (Weiss & Hechtman, 1979). During this decade, researchers defined the characteristics of this disorder as having a short attention span, being impulsive, easily agitated, and easily distracted (Marwitt & Stenner, 1972). Researchers also found more evidence to debunk the theory of MDB, noting that only a minority of children with brain damage exhibited hyperactive traits, and few children with hyperactive traits presented signs of neurological damage (Rutter, 1989). Canadian psychologist Virginia Douglas argued that lack of attention and impulse control were more prevalent than just hyperactivity in reasoning why children experienced problems in school (1972). Douglas also found that children with hyperactivity (a) did not uniformly experience more academic learning disabilities, and (b) exhibited similar issues with

short-term memories compared to children without the condition (1972). Further, Douglas and another researcher, Susan Campbell (1973), found that children with a hyperactive disorder did not show any more distractibility compared to children without the condition if no significant stimulus existed.

Use of Medication

The rise of stimulant medication was prevalent during this period (Barkley, 2014). As early as the 1930s, Benzedrine had first been prescribed to combat the effects of ADHD (CDC, 2017). By the 1950s and 60s, Ritalin and Adderall had become the established *go to* drugs, and the late 1990s and early 2000s witnessed the release of several more drugs to treat ADHD symptoms. By 1976, over 120 studies had been published on the positive effects of managing hyperactive symptoms in children with medication; this number increased to over 240 by the 1990s (Swanson, McBurnett, Christian, & Wigal, 1995).

Other research studies conducted in the 1970s investigated the efficacy of alternative treatments and found that intensive behavior accommodations in the classroom demonstrated reductions in disruptive behavior and appeared to present a viable alternative to medicinal treatments (Ayllon, Layman, & Kandel, 1975). Nonetheless, although these alternative treatments showed significant improvements in the reduction of off-task behaviors, they did not replace the use of prescription drugs (Gittelman-Klein et al., 1976). A growing opinion during this time was that a combination of stimulant medications, behavioral accommodations, and behavioral interventions by parents would produce the greatest benefits in the classroom (Barkley, 2014).

ADHD Rating Scales

Rating scales for parents and schools were developed during the 1960s. The most widely used scale was developed by Keith Conners. It was referred to as the *Conners Teacher Rating Scale* and was used to check for symptoms of hyperactivity (Conners, 1969). The scale was designed to identify ADHD characteristics in children between the ages 4-17 based on teacher and parent feedback. Considered the *standard* diagnostic tool, this scale was used for the next 20 years in schools. Eventually, the scale came under scrutiny because some researchers argued it relied too heavily on children showing aggressive signs like hostility (Ulmann, Sleator, & Sprague, 1983). By the end of the 1970s, the prevailing view was that hyperactivity was not the single deficit in children, instead, hyperactivity was typically accompanied by a reduced attention span and impulse control; all three conditions were important for a correct diagnosis (Barkley, 2014). The United States continued to operate under the belief that the disorder was best managed through the use of stimulant medication (Barkley, 2014).

The 1980s witnessed a profusion of research into hyperactivity disorders, making it the most researched psychological disorder ever (Barkley, 2014), and finally observed the emergence of a common body of beliefs and understanding of the disorder, and its diagnosis and treatment (Taylor, 1986). This led to the description of the condition known as attention deficit disorder (ADD) was published in the Diagnostic and Statistical Manual of Mental Disorders (DSM-III; American Psychiatric Association, 1980). The ADD diagnosis emphasized inattentiveness, impulsivity, and age; it provided a scoring mechanism to assist diagnosis; and it excluded other psychiatric conditions (Barkley, 2014). Researchers then distinguished two different types of ADD: ADD-H, which

indicated fewer hyperactive tendencies, but more daydreaming or inattentiveness; and ADD+H, which described the typical hyperactive or defiant behavior (Barkley, Grodzinsky, & DuPaul, 1992). Over time, these terms were replaced with the terms still in common use today: ADD, formerly ADD-H, and ADHD, formerly ADD+H (Barkley, 2014).

In 1988, an international symposium was held in the Netherlands which gathered feedback from researchers from around the world. During this symposium, it was agreed that a diagnosis for ADHD should include confirming evidence from adults that ADHD symptoms (a) were observable in at least two out of three settings: home, school, or appointments with a pediatrician; (b) that individuals should exhibit a minimum of three out of four difficulties associated with activity and attention symptoms beginning before the age of seven; (c) high levels of ADHD symptoms should be reported both by parents and teachers; and (d) diagnoses of autism or psychosis must be excluded (Bloomington & Sergeant, 1988).

In the 1980's researchers began exploring the effects of stimulant medication of students in social settings. They found that while students with ADHD often elicited negative interactions from others those instances were greatly reduced by the use of stimulant medications (Barkley, 2014). They also found strong evidence to conclude that ADHD could be passed down within the family (Biederman, Munir, & Knee, 1987). The 1980s saw a change in the procedural assessment of ADHD through the creation of the child behavior checklist (assesses symptoms of ADHD like hyperactive and inattentive behaviors) that is typically filled out by parents, educators, and doctors (Achenbach & Edelbrock, 1983). With greater statistical reliability and validity, the child behavior

checklist represented an improvement over its predecessor, the *Conners Teacher Rating Scale* (Barkley, 1988) and was widely adopted through the end of the decade. Lastly, the 1980s witnessed better outcomes for individuals through application of combined treatments (Barkley, 1989) and mixed interventions (Satterfield, Satterfield, & Cantwell, 1981).

ADHD Research and Evolution

In the 1990s, scientists began using brain imaging to evaluate long-term effects in adults who had a history of ADHD as children and found a significant reduction in brain metabolic activity (Barkley, 2014). Some researchers also began using MRIs to scan children's brains, observing smaller prefrontal lobes and striatal regions of the brain (Castellanos et al., 1994). This research concluded that ADHD does in fact show physical impairments in the brain (Barkley, 2014). Today, ADHD is known as a universal disorder observed worldwide. New medications have been developed to meet the varying needs of patients with ADHD, some of whom developed ADHD as the result of brain injury (Barkley, 2014).

The 2000s and Beyond

Since the 2000s, much research has been published about the heredity, genetics, and neurogenetics of ADHD which has led to almost doubling the amount of ADHD literature (Barkley, 2014). Subtyping, or developing variations for ADHD have also increased research in that some believe they are completely different disorders (Milich, Balentine, & Lynam, 2001). Others have suggested the ADD portion, or sluggishness and an inclination to be distracted in nature, be called concentration deficit disorder (Barkley, 2014). It is also during this time that advancements, specifically in medication

resulted in the development of time-released medication (via a patch or pellets), which extends its effectiveness for 8-12 hours (Barkley, 2014). While new psychosocial techniques have not been found, there have been improvements in behavioral parenting training for parents (Chronis, Chacko, Fabiano, Wymbs, & Pelham, 2004) that provide parents with skills to look for what causes behaviors and correct ways to respond to them, which have demonstrated effectiveness in managing children and teens diagnosed with ADHD. Chronis et al. identified 28 studies that included 1,161 children in age ranging from 3-14 showed positive improvements in observed negative parent and child behaviors. The identification of ADHD among countries also established common ground during the 2000s, mainly due to the availability of the Internet (Barkley, 2014). However, as Barkley (2014) has stated, the recent widespread study of ADHD and the new plethora of knowledge about ADHD will hopefully, “greatly limit the impairments experienced by many who suffer from ADHD in their lifespan” (p. 37).

ADHD Diagnosis

The fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders or DSM-5* (American Psychiatric Association, 2013) outlines criteria for diagnosing ADHD in children. First, the manual states there must be a “persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development” (p. 59). The *DSM-5* also outlines conditions and symptoms, six or more of which that must be present either alone or in tandem that are linked to inattention and which have persisted for at least six months, are inconsistent with the child’s peers, and negatively impact social and academic/occupational events. These conditions include: (a) fails to give close attention, (b) difficulty sustaining attention, (c) difficulty listening, (d) does not follow-

through on tasks, (e) unorganized, (f) avoids tasks that require a great deal of attention, (g) loses things, (h) easily distracted by stimuli, and (i) is often forgetful. The symptoms which may co-exist or may stand on their own include: (a) excessive fidgeting, (b) leaves seat when supposed to be seated, (c) runs around or climbs, (d) unable to play in leisure activities, (e) often on the go, (f) excessive talking, (g) blurts out answers, (h) difficulty waiting his/her turn, and (i) intrudes in other's conversations. In addition, impulsivity/inattention must have been present prior to age 12; must be present in two or more settings (work, home, school, or with friends); must interfere with academic performance, social instances, and occupational functioning; and are not explained by any other mental psychotic disorder like schizophrenia or anxiety disorder.

Comorbidity

Children diagnosed with ADHD are often diagnosed with comorbidity, the diagnosis of more than one medical condition at one time (First, 2005), of other disorders like anxiety and depression (Weiping & Lixiao, 2015). Instances of major depression occur in young women with ADHD at a rate 2.5 times higher than their non-ADHD diagnosed counterparts (Biederman et al., 2008). Major depression is genetically passed down through the mother and places a child with ADHD at a significantly greater risk of developing the same disorder (Mick, Santangelo, Wypij, & Biederman, 2000).

When students are diagnosed with ADHD there are often other concurrent conditions that can be supported either through pharmacological and/or behavioral treatments (Subcommittee on Attention-Deficit/Hyperactivity Disorder, 2011). Sometimes these diagnoses can be incorrect. Students with ADHD have also been misdiagnosed as learning disabled or as possessing disruptive behavior disorder

conditions (Schoemaker et al., 2012). In addition, students diagnosed with ADHD who take prescription drugs often have negative thoughts about themselves, and peers have negative thoughts about them (Mitchell, Benson, Knouse, Kimbrel, & Anastopoulos, 2013).

Children with autism spectrum disorder (ASD) can be diagnosed with ADHD as a comorbid condition. A national survey of 4,032 parents found a wide range of comorbidity between ASD and ADHD. In some states the rate was as low as 37% while in other states the rate was as high as 78% (Stevens, Peng, & Barnard-Brak, 2016). The sample surveyed included the following racial representations: 77% White, 9% African American, and 13% of mixed races; and included a variety of school environments: 85% attended public schools, 9% attended private schools, and 4% were home-schooled. Participants also met the following criteria: (a) between the ages of six to 17, (b) lived in their parents' household, and (c) had a diagnosis of ASD, intellectual disability, or developmental delay diagnosed by a doctor.

There is empirical evidence (Gut et al., 2012) that students diagnosed with ADHD have either been misdiagnosed, simply lack motivation, have a comorbidity of other related disorders like disruptive behavior disorder (DBD), or have impaired executive function. Gut et al. (2012) matched students diagnosed with ADHD against two control groups: students with related DBD, and a non-clinical group, to determine whether school motivation, performance in language skills, and mathematical thinking were stronger in students diagnosed with ADHD. The purpose was to expose the lack of research related to motivation among students with ADHD rather than just focusing on achievement. The study included 69 students (57 male, 12 female) ranging in age from six to ten, diagnosed

with ADHD or DBD, and a control group consisting of students with no diagnosis of either condition. Language skill was assessed through expressive and receptive language, mathematics skills through logical mathematical problems of increasing difficulty, and achievement motivation assessed through the achievement motivation inventory (Gut, et al., 2012). All three skills were measured quantitatively. Results indicated that students diagnosed with ADHD scored lower than the control group in achievement and motivation because of past negative learning experiences. Gut et al. also found, however, that highly motivated students diagnosed with ADHD performed as well as the control group on receptive language and mathematical thinking. This result may indicate schools should place more focus on motivating students diagnosed with ADHD.

Schoemaker et al. (2012) examined the executive function of preschool students diagnosed with ADHD or DBD, and preschool students having both conditions. The researchers compared the comorbid students to those with a single condition. This study is the first of its kind to indicate specific inhibition deficits among preschoolers diagnosed with ADHD regardless of a comorbid DBD incidence. Students diagnosed with only DBD also indicated a lowered inhibition factor on one of the tests compared to the control group who did not have either ADHD or DBD. Students diagnosed with both ADHD and DBD showed similar inhibition impairments but had significantly more inhibition deficits than the DBD-only student group. The implications of this study appear to suggest that students with a comorbid diagnosis of ADHD and DBD have increased inhibition, making socializing difficult.

ADHD in Schools

Statistics show that upward of 11% of children, or just over six million, have been diagnosed with ADHD (CDC, 2013); this represents an increase from 3.7% in 2003. Boys are diagnosed at higher rates than girls, 13.2% compared to 5.6%, respectively (CDC, 2013). Large-scale studies indicate that ADHD diagnoses occur more often in homes where parents have 12 or more years of schooling compared to those with less than 12 years of school (Visser et al., 2014). Children from poorest or lowest socio-economic status groups compared to the wealthiest group of children in America were more likely to fulfill criteria for ADHD, but the wealthiest children were much more likely to receive medicinal treatment for ADHD (Froehlich et al., 2007). An ADHD diagnosis also correlated to racial and cultural differences. Children from racial/ethnic minority backgrounds (African American, Hispanic, and other races/ethnicities) were found to have 69% fewer diagnoses than White children (Morgan, Staff, Hillemeier, Farkas, & Maczuga, 2013). Other studies have been conducted to find that students from a racial/ethnic minority, low income background tend to not receive treatment for ADHD compared to students from nonminority groups due to family burden, perceived need, child's perceived health status, and/or cultural norms about the illness (Dosreis, Mychailyszyn, Myers, & Riley, 2007).

Students who are commonly diagnosed with ADHD in school usually demonstrate deficits in several academic areas compared to their peers. Specifically, students with ADHD typically show slower growth in reading ability especially in decoding speed and comprehension (Ehm et al, 2016). Spira and Fischel (2005) found that children, specifically with hyperactivity, impulsivity, and inattention, in pre-school

were found to have a harder time grasping basic academic skills. In a review of the literature, Spira and Fischel found that between the ages of 3-6, a child's inability to focus, often present in children diagnosed with ADHD, turns into consistent problematic behaviors interfering with academic learning. In addition, the authors found that children with symptoms of inattention, hyperactivity, and impulsivity have a much higher rate of academic underachievement; they suggest this is due to the "negative impact of emergent literacy" (p. 770). As students diagnosed with ADHD grow older, they are more likely to experience academic problems and are often placed in remedial or special education classes (Biederman et al., 1996). Students diagnosed with ADHD also exhibit poor scores on math and reading standardized tests and an increased rate of grade retention (Loe & Feldman, 2007). Similarly, Merrell and Tymms (2001) found students diagnosed with ADHD scored significantly lower on math and reading assessments than those not diagnosed with ADHD. Merrell and Tymms evaluated 4,148 students (52.3% boys and 47.7% girls) ranging in age from 4-7 using a behavior rating scale from the DSM-IV, completed by their teachers, to identify the prevalence of ADHD symptoms. Results indicated that students exhibiting many indicators on the behavior scale performed "statistically and educationally lower" (p. 43) than students who had no indicators of ADHD.

Children diagnosed with ADHD growing into adolescence also have demonstrated struggles with academic performance. Bauermeister et al (2007) found that 763 children (79.5% male and 30.5% female), ranging in age from 4-17, diagnosed with ADHD were likely to have educational difficulties that required the use of counselors and/or special education services. Similarly, Rodriguez et al (2007) in a sample of

13,087 students (49-51% males) from Sweden, Denmark, and Finland, ranging in age from 7-12, found that students who exhibited ADHD core symptoms of inattention and hyperactivity were found to have a significant impairment in math, reading, and writing. In addition, McGee et al (1991) found students who were rated as hyperactive in pre-school were also more likely to be labeled as reading disabled compared to a control group. In their study, 2% (N=21) of children labeled as hyperactive during pre-school showed “poorer cognitive skills, lower levels of reading ability, disruptive and inattentive behaviors at home and at school, and higher rates of DSM-III disorder in preadolescence and adolescence” (p. 224) when assessed after 12 years of school compared to children not labeled as hyperactive.

Students diagnosed with ADHD also experience a myriad of behavior difficulties in school. Instead of utilizing intervention techniques, teachers tend to use punitive measures to correct or control behavior difficulties (DuPaul & Eckert, 1997). In a study of 808 students (17% diagnosed with ADHD) LeFever, Villers, Morrow, and Vaughan (2002) found students diagnosed with ADHD were 3-7 times more likely to be expelled or suspended compared to others without a diagnosis of ADHD. These behavioral problems can lead to poor attendance or leaving school altogether with no or inadequate qualifications to enter the work force (McGee et al, 2002).

School Experiences of Students Diagnosed with ADHD

Children diagnosed with ADHD have experienced life in a variety of ways. Klassen, Miller, and Fine (2006) and Landguf and Abetz (1997) suggested children diagnosed with ADHD have roughly the same quality of life (QoL) as children without ADHD. Klassen et al. (2006) studied 58 parents of children diagnosed with ADHD and

found children rated their QoL higher than their parents in four out of five areas.

Topolski et al. (2004) and Varni and Burwinkle (2006) found children diagnosed with ADHD experienced a much poorer QoL than those without ADHD. Landgfuf and Abetz (1997) studied 54 children between the ages of 10-15 using the Child Health Questionnaire (which measures the physical and psychosocial wellbeing of children) with ADHD and found children diagnosed with ADHD did not rate themselves worse on the behavior scale. Adversely, more recent studies have indicated the opposite. Topolski et al. (2004) studied 54 males with a clinical diagnosis of ADHD and a control group of 107 adolescents without ADHD with the Youth Quality of Life Survey, assessing the important areas of life determined by adolescence (Edwards et al., 2002), and found that children diagnosed with ADHD reported a lower score on the QoL survey mainly in the domains of self and relationships. Varni and Burwinkle studied 72 children diagnosed with ADHD from ages five to 16 with the Pediatric Quality of Life Inventory (measuring the pediatric population of health for children diagnosed with ADHD) and found that children diagnosed with ADHD reported impaired psychosocial functioning.

Within school, children diagnosed with ADHD often report their experiences as being difficult compared to other students who do not have ADHD. Kendall, Hatton, Beckett, and Leo (2003) in a study of 39 children diagnosed with ADHD ranging in age from six to 17 found that children diagnosed with ADHD reported their learning was slower than their non-ADHD classmates and that they felt, “constantly distracted and confused about what was said to them and or what they were supposed to do” and “They often felt as if they were ‘different’ from their peers because of these traits” (p. 120). In addition, Kendall found that many of the children interviewed were very quick to discuss

the behavioral issues experienced in school. Specifically, students reported often, “throwing and breaking things, running away, cussing and yelling at teachers, and fighting” (p. 120). Students in the study, however, found that taking ADHD medication mitigated their symptoms and stated the medication, “helped them control their hyperactivity, increased their concentration and improve grades, and helped them become more behaved” (p. 123).

Lived experiences. Krueger and Kendall (2001) similarly found very close connections between how students diagnosed with ADHD perceive, manage, and experience school. They studied 11 children (eight males, three females) and found that these children experienced school in several negative ways. When describing a sense of cohesion within school, one female student said:

I know I’m going to make a mistake. My teacher just has to look at me or ask a question and I can’t say anything. I don’t want to look dumb. I get so mad at myself, but I don’t want anyone to know it. Then I start crying. (p. 66)

The boys interviewed in this study also reported negative experiences, specifically in feelings of esteem and empathy. One boy stated, “If people can’t handle me, that’s their problem. I get tired of other people’s expectations. If *they* (teachers) get uptight, I don’t have to deal with it. I quit school because of that-I don’t have to prove anything” (p. 67). Based on these and other qualitative interviews, Krueger and Kendall inferred that, “experiences these participants described might be a reflection of the stigma and negative appraisals given them from society” (p. 68).

Finally, Walker-Noack, Corkum, Elik, and Fearon (2013) conducted a study to gain the perceptions of school experiences of children diagnosed with ADHD and to

highlight barriers to treatment. In the study, they conducted focus groups of 25 children diagnosed with ADHD from elementary, middle, and high school. Through the study, they concluded that children diagnosed with ADHD (a) do not perceive ADHD as a positive thing in their lives, (b) understand the importance of school interventions or accommodation as a means of managing their symptoms, (c) experience both positive and negative effects of ADHD medication, and (d) believe the vast majority of people are un- or mis-informed about ADHD.

Early diagnosis. Some studies have shown that children as young as the age of four could be diagnosed with ADHD (Visser et al., 2014), while other research has suggested that given particularly high levels of ADHD, symptoms can manifest in children as young as 15 months for girls, and 24 months for boys (Arnett, MacDonald, & Pennington, 2013). Research has also found that many adults susceptible to ADHD are typically not diagnosed, making it difficult to understand their symptoms and hard to diagnose their condition because of memory recall issues. Recent research has suggested that up to 50% of adults who may actually have ADHD are not diagnosed at all, making treatment problematic (Kieling et al., 2010).

The World Health Organization (2009) stated that the diagnosis of ADHD might reflect a dysfunctional home life or an inadequate school system rather than being an actual problem with the individual. Some theorists believe an ADHD diagnosis is socially constructed because the way ADHD children act goes against what is socially acceptable, creating a negative stigma (Parens & Johnston, 2009). For example, Parens and Johnson suggested that since ADHD diagnoses rely on interpretations ADHD is not a real disorder because these interpretations or *zones of ambiguity* vary from person to

person. The term, zone of ambiguity, stems from various systems and tools used to diagnose ADHD, different parenting styles and structures, and expectations of the child. Dreyer, O'Laughlin, Moore, and Milam (2010) concurred with this sentiment by stating, “there is currently no medical test or gold standard to diagnosis ADHD” (p. 1102).

The youngest student in the classroom is also more likely to be diagnosed with ADHD due to being developmentally behind than their classmates (Elder, 2010). ADHD type behaviors are also found more in children who have experienced some sort of violence or emotional abuse (National Collaborating Centre for Mental Health, 2009).

Teachers also play a significant role in the diagnosis of students with ADHD and are often the first to suggest that a child has ADHD (Sax & Kautz, 2003). In 2003, researchers found that teachers reported ADHD symptoms 50% of the time (DosReis et al., 2007). Teachers’ feedback regarding ADHD symptoms is important since they spend the majority of their day with children. This information can support physicians diagnosing children with ADHD and subsequent treatments (Del Mundo, Pumariega, & Vance, 1999). Teachers, however, reported their knowledge of ADHD medication was low but they agreed the positive effects were beneficial in reducing negative outcomes (decreased attention span and off task disruptive behaviors) and increasing positive responses (greater attention to work and getting along with peers; Lien, Carlson, Hunter-Oehmke, & Knapp, 2007).

Stigmatization. Social prejudices also stigmatize students diagnosed with ADHD, specifically within the public-school system. Wilson (2013) examined the prejudices attributed to people diagnosed with ADHD, suggesting that in the future we will be appalled that we would label people with ADHD as having a mental dysfunction

just as we would be appalled today if we openly labeled homosexual individuals as mentally ill. He argued the psychiatric stigma associated with the diagnosis influences children to become someone other than themselves is based strictly on social constructs when what we should be looking at is what happens in the home. Specifically, he stated, “he behaves this way because he has ADHD and ADHD makes him behave this way – is unacceptable because it is illogical when social realities and family troubles are staring us in the face” (p. 215). Wilson concluded that if therapy is truly the best alternative then we should, “ensure this ethical position is not eroded through a lack of debate about ADHD and the children behind the diagnosis” (p. 215).

School Accountability

Since the inception of No Child Left Behind (NCLB) in 2001, researchers believe there has been a dramatic increase in diagnoses of ADHD and subsequent use of prescribed stimulant medications specifically because of increased school accountability (Hinshaw & Scheffler, 2014). With the increase in ADHD diagnoses from 7.8% in 2003 to 11% in 2011 (CDC, 2013), academic pressure has been linked to more students taking medication over the summer, when they typically stop taking ADHD medication, in order to meet the increasingly demanding high level of academics (King, Jennings, & Fletcher, 2014). It has also been linked strongly to states with strict accountability measures compared to states with less strict measures. States with strict regulations defining the points of failure for students also observe a strongly correlated upsurge in ADHD diagnoses compared to states with fewer penalties for low student achievement (Miller, n.d.). These academic pressures affect medical diagnosis and usage of ADHD medication usage in school aged children (Bokhari & Schneider, 2011). For example, in

states with consequential accountability laws, researchers found an increase in ADHD diagnoses from 8.5% in 2003 to 13.2% in 2007 compared to 10.2% in 2003 to 12.1% in states with less-strict accountability measures (Fulton et al., 2015).

Schools' Role in Diagnosis of ADHD

In the 1990s the Conners' scale was the most effective way of identifying children diagnosed with ADHD (Green, Wong, Atkins, Taylor, & Feinleib, 1999). Developed by Dr. Keith Conners, the scale gathered input from parents, teachers, and, if age appropriate, children. Though schools do play a legitimate role in identifying children who need ADHD evaluation, they are not responsible for actual diagnosis. Pediatricians may perform this test via the *DSM-5*. Alternatively, other healthcare professionals, such as psychiatrists or psychologists, are able to diagnose children diagnosed with ADHD (CDC, 2013).

Parents and ADHD

Bull and Whelan (2006) indicated that some parents' perceived differences among children diagnosed with ADHD such as, differing needs for medication, physiological management, and community support, which limit their ability to support their children. This underscores the need to consider the concept that social factors might exacerbate ADHD symptoms. Research also has shown that parents differ in beliefs about how their child is best supported to reduce symptoms (Chen, Seipp, & Johnstone, 2008). Chen et al. indicated that mothers preferred behavioral management techniques more than fathers who believed more in psychological causes and treatments for ADHD. Utilizing a questionnaire, mothers and fathers of 19 girls and 17 boys diagnosed with ADHD (ages five to 13) Chen et al. studied attributions of the children's behaviors via a written

response and questionnaire about their beliefs and knowledge of ADHD. Mothers indicated inattention and impulsivity to global factors while fathers indicated more internal factors.

Before a child has been diagnosed with ADHD, some parents report going through an extensive process of figuring out what their child's issues are and subsequently, getting their child support to reduce ADHD symptoms (Dosreis, Mychailyszyn, Myers, & Riley, 2007). Parents may also inadvertently play a role in a misdiagnosis of a child. Deault (2010) indicated that homes with psychopathology and family conflict lead to issues with oppositional and conduct symptoms rather than inattentive or hyperactive symptoms.

Parents play a significant role in whether the child diagnosed with ADHD is successful with medication and/or behavioral interventions (Hansen & Hansen, 2006; Attention-Deficit, 2011). Left undiagnosed or untreated at an early age, children run the risk of poor academic attainment, other psychiatric disorders, or impaired social adjustment (Sayal, Ford, & Goodman, 2010). Parents also need to fully understand ADHD, various experiences children diagnosed with ADHD have, and successes and challenges of ADHD treatment options (Charach, Yeung, Volpe, & Goodale, 2014). Pediatricians need to educate both children and parents about ADHD, diagnosis, medications, behavioral treatment, and have an unbiased view of these treatments when supporting a family's decision for treatment. This can have a major effect on how the parent perceives an ADHD diagnosis and treatment options like medication or non-medicated treatments (Ahmed, McCaffery, & Aslani, 2013).

While parents found that completing homework in the afternoon for an ADHD child is very difficult, they noted the importance of structure and routine as effective ways to overcome these challenges (Firmin & Phillips, 2009). Parents also struggle with how much medication is right for their child and when or how they should take them off medication. They described it as a give and take balancing act of desirable and non-desirable effects of ADHD medication and the role it should play in the future of the child's life (Hansen & Hansen, 2006). Parents are also more apt to report negative effects of ADHD medication in their children than the children themselves (Thorell & Dahlström, 2009). Leslie et al. (2007) conducted a qualitative study of 28 families from varied racial and socioeconomic backgrounds that investigated diagnosis and treatment for ADHD, specifically regarding whether medication did or did not become part of the decision-making process. Parents indicated: (a) lack of knowledge about ADHD, (b) a desire for more mental health and school services and options other than medication, (c) the importance of cultural backgrounds, and (d) the need for closer relationships between clinicians and parents to provide greater support. Further, as children grow into adolescence, their views of ADHD and medications begin to differ from their parents in that children may begin to refuse to take medication, which can directly affect adherence to medication schedules (Charach et al., 2014).

Student Views of ADHD

Students diagnosed with ADHD also typically have automatic negative thoughts about their diagnosis. Research based in France examined why students had automatic negative thoughts following being diagnosed with ADHD and found they resulted from negative remarks by their peers (Caillies, Bertot, Motte, Raynaud, & Abely, 2014).

Caillies et al. (2014) studied children's reactions to ironic stories asking them to describe what the speaker thought about people diagnosed with ADHD. The study included 30 children: 15 diagnosed with ADHD (ten boys and five girls) and 15 boys and girls without ADHD (no gender breakdown was available) with a mean age of nine. The purpose of the study was to characterize the social cognition abilities of children diagnosed with ADHD by "exploring their understanding of people's recursive mental states and their irony comprehension" (p. 3196). They found that students diagnosed with ADHD, compared to a control group, had a lower level of executive function, which they linked to impairment in social cognition (Caillies et al., 2014). This impairment in social cognition caused students with ADHD to be more susceptible to second order false beliefs of themselves, or a false belief of a person, based on the thoughts of another. ADHD children's negative mindset is sometimes also influenced by the classroom teacher. Daniels and Weiner (2002) suggest teachers' reactions to these students' behavior directly correlates to their self-esteem and acceptance by their peers. Specifically, the authors found that if a teacher's automatic response to an ADHD child was negative or punitive, it leads to the child feeling embarrassed or socially isolated. Daniels and Weiner suggested teachers use preemptive interventions to react to ADHD children's impulsivity and hyperactivity.

Finally, researchers have also demonstrated a relationship between one's sex and: (a) negative social preference (negative value of an individual based on their condition), (b) internalization (depression), and (c) externalization (mood swings) problems in students diagnosed with ADHD (Becker, McBurnett, Hinshaw, & Pfiffner, 2013). Becker et al.'s study compiled data from teachers, parents, and students in the San

Francisco Bay area. First, teachers were asked to complete surveys on participating students to evaluate whether students with ADHD were liked or disliked by their peers. Second, teachers, parents, and student participants provided data on depression and anxious feelings. Finally, parents and teachers rated the degree of externalizing problems for the student participants. A total of 188 students diagnosed with ADHD participated. Of these, 110 (58.5%) were boys and 78 (41.5%) were girls. Children, teachers, and parents alike reported both anxious and depressive symptoms in these identified students. Boys were found to have more negative social presence while girls were found to have more internalizing symptoms (Becker et al., 2013).

Treatments for ADHD

Non-Pharmacological

Student and parent behavioral therapy. Additional alternative methods to medication for students with ADHD, while not proven to be as effective as ADHD medication, have come to light in the form of cognitive behavioral therapies (CBT) that teach children to self-manage the effects of ADHD (Oortmerssen et al., 2013). These CBT therapies typically precede prescription medications. In fact, the American Academy of Pediatrics suggests implementing behavioral therapy before prescribing ADHD stimulant medication for children ages four to five (Attention-Deficit, 2011). Effective behavioral interventions include behavioral parenting training (BPT) and behavioral classroom management (Attention-Deficit, 2011). BPT involves providing parents with behavior modification principles within the home setting. These principles include positive reinforcement for responding with a desired behavior, planned ignoring when the child demonstrates a negative behavior, or a combination of both positive

reinforcement and planned ignoring. Outcomes of BPT include improved response to parental commands, improved understanding of parents' knowledge of how to support an ADHD child, and a high level of parental satisfaction with this specific treatment (Attention-Deficit, 2011).

Teaching practices and behavior interventions. Another leading non-medicated theory of treating ADHD symptoms is aimed at modifying teaching practices and student behavioral interventions. Arcia, Frank, Sanchez-LaCay and Fernandez (2000) found that some teachers are not aware of ADHD behaviors or effective classroom management skills to support these students. Hamilton and Astramovich (2016) concluded that "Identifying strategies for increasing the academic success of students with ADHD is therefore crucial to their long term academic and life success" (p. 452). To support children diagnosed with ADHD in school, Dogget (2004) reported that educational interventions have shown an increase in cognitive outcomes such as improved attention, self-regulation, acquisition of social skills, and work-related activities. Other educational practices include; (a) contingency management (interventions that use positive reinforcement like tangibles and negative reinforcement like corrective feedback to reduce school-related behaviors); (b) academic interventions (focus on antecedent conditions like peer tutoring or academic materials like organizational skills training; and (c) cognitive-behavioral interventions (development of self-control like self-instruction and reflective problem solving strategies like self-management to regulate behavior) and have been shown to increase both academic and behavioral outcomes (DuPaul & Eckert, 1997). These treatments have increased

attention and academic performance, improved productivity, and decreased disruptive behaviors (Attention-Deficit, 2011).

Pharmacological

Stimulants. Studies indicate that ADHD stimulant medication has been the most commonly used and effective way to control ADHD symptoms in children (CDC, 2103). As of 2012, large-scale studies indicate around 69% of children diagnosed with ADHD take ADHD medication (Visser et al., 2014). About 25-30% of children do not respond to just one medication so it is common that they receive a second type of stimulant or a different type of stimulant medication altogether (Vaughan, Roberts, & Needelman, 2009). Lack of control over the dosage given to the ADHD patient may be a contributing factor causing the ineffectiveness of medication (Stevens, Wilens, & Stern, 2013). To mitigate this under dosage, pediatricians commonly use weight to determine dosage of ADHD medication in adolescents and adults (Kessler, 1996). Common positive outcomes of stimulant medication are improved on-task behaviors, improved attention, and improvement of short and long-term recall of information (Parker, 2005). Adversely, Dr. Peter Breggin (2009), founder of the Center for Study of Psychiatry and Psychology, argued that medication is a quick fix for parents and students and suggested that behavioral therapy be utilized before medication usage. Breggin argued that stimulant medication is harmful for children, that it disrupts brain function, has toxic effects on organ function, and that it can, “overtax the heart by causing an elevated heart rate and hypertension” (p. 53). Dreyer et al. (2010) indicated that parents typically opt for prescribed medication (81.5%) for their children with more often than psychological services, citing lack of time and noncompliance with the child’s teacher.

When stimulant medication is prescribed, it is commonly done at a low dosage and then increased if need be to achieve the desired positive effects (Rappaport, Kulick, & Phelps, 2013). Researchers suggest that once a child is on an effective ADHD medication, it is hard to get them off (Bimble, 2009), suggesting this is because of the drug companies' extensive research on the positive effects of ADHD medication in children. This is backed up by other research that suggests a change in approach to treating less severe cases of ADHD, presumably with alternative methods to ADHD medication (Kendall, Taylor, Perez, & Taylor, 2008). Long-term effects of ADHD medication have yet to be determined (Kiely & Adesman, 2015), but current research has found that medication usage for students with ADHD to be highly impactful with student success by increasing on-task behaviors and improving memory recall (Parker, 2005). It is suggested that patients who take ADHD medication long term should continue to be monitored for side effects or effectiveness of the ADHD medication (Kraemer, Uekermann, Wiltfang, & Kis, 2010). In addition, patients should stop using ADHD medications from time to time to see if he/she has a continued need for ADHD medication or if the patient has developed a tolerance for the medication (Ibrahim & Donyai, 2015).

Long-term effects of ADHD medication. In adulthood, Abouzari, Oberg, Gruberr, and Tata (2015) showed that non-medicated ADHD patients exhibit a greater risk of gambling addiction or making bad choices in high stakes situations. They utilized a computerized gambling program called the Iowa gambling task to check for the influence of reinforcement driven choice in people diagnosed with ADHD who have a pathologic gambling addiction. Participants included: (a) 15 gamblers (b), four

unmedicated ADHD gamblers (c), 23 medicated ADHD nongamblers, and (d) five unmedicated ADHD nongamblers. Participants were given the choice of a good bet (50-point winnings) or a bad bet (100-point winnings). Participants with a pathologic gambling addiction showed similar results compared to non-medicated ADHD participants. Over 400 games, both pathologically addicted gamblers and non-medicated ADHD participants chose the bad bet over 60% of the time. Control participants (those with neither ADHD or pathologic gambling addiction) and medicated ADHD participants chose the good bet. The study demonstrated ADHD medication is not associated with poor choices when using the Iowa gambling task. It also concluded that for participants with a pathologic gambling addiction taking ADHD medication resulted in reduced addictive gambling behavior (Abouzari et al., 2015).

Fatseas, Hurmic, Debrabant, Serre, and Auriacombe (2015) found a significant correlation between people diagnosed with ADHD and substance use disorder (SUD). Their study included 230 patients (64% males with an average age of 37) in an outpatient addiction clinic using an addiction severity index, the mini international neuropsychiatric interview, and the Conners' Adult ADHD diagnostic interview. The study found that males had borderline personality disorders and exhibited early onset SUD. Adult patients diagnosed with ADHD were found to be five times more likely to have a poly-addiction compared to children diagnosed with ADHD. This study also found that children with an ADHD diagnosis showed early signs of SUD while adult patients with ADHD have more severe cases of SUD (Fatseas et al., 2015).

Recent research suggests that ADHD medication usage can actually reduce the risk of substance usage disorders but only if taken continuously (Zulauf, Aprich, Safren,

& Wilens, 2014). In a meta-analysis of 15 longitudinal studies including 2565 participants, Humphreys, Eng, and Lee (2013) suggested no link between increased rates of SUDs in children diagnosed with ADHD. Additionally, Wilens, Faraone, Biederman, and Gunawardene (2003) studied 674 medicated and 360 unmedicated participants (all diagnosed with ADHD) for four years found a “1.9-fold reduction in risk for SUD in youths who were treated with stimulants compared with youths who did not receive pharmacotherapy for ADHD” (p. 179). In addition to ADHD medication, children and adults diagnosed with ADHD that suffer from SUDs have shown statistical improvements using multidimensional family therapy (MDFT), an outpatient home-based therapy program “including family systems theory, developmental psychology, ecosystems theory, and the risk and protective model of adolescent substance abuse” (Austin, Macgowan, & Wagner, 2005, p. 75).

Non-Stimulants

Other methods of managing ADHD symptoms include non-stimulants (medication that improves executive functioning that is typically prescribed when stimulant medication is unsuccessful). About 30% of patients taking stimulant medication to curb ADHD symptoms do not respond appropriately (Vaughan et al., 2009). While non-stimulants are still medication, they are typically used when patients have side effects from stimulants like decreased appetite, sleeping problems, anxiety, headaches, when stimulants are not effective, or in combination with stimulants (National Institute of Mental Health, 2016). While non-stimulants take longer to process through the body, they can be used to manage most ADHD symptoms.

Antidepressants. Tricyclic Antidepressants (TCA) are typically prescribed to children who have had unsuccessful experiences with ADHD stimulants or have had unwarranted side effects (Parker, 2005). TCAs have a unique advantage over stimulant medication in that they last longer. They typically last all day whereas stimulants last between four to 12 hours. TCAs, however, have been shown to be less effective at improving attention or concentration and reducing hyperactive/impulsivity (Parker, 2005). TCAs have also caused side effects like drowsiness, dry-mouth, constipation, and stomach pains (Parker, 2005). More severely, TCAs have caused cardiac issues, which is why they are rarely used to treat ADHD symptoms today (Davis, 2008).

Antihypertensive. Anti-hypertensives have been shown to be effective mainly with ADHD children exhibiting issues with hyperactivity, impulsivity, and/or defiance but have less effect on improving attention (Parker, 2005). They have also been shown to support ADHD children with stimulant medication who have previously shown issues with not sleeping, but can cause drowsiness (Parker, 2005).

ADHD Medication in School

Through a national parent survey in 2011, the CDC reported a correlation of increased medication use, from 4.8% in 2007 to 6.1% in 2011, in line with increased diagnoses of ADHD. While in school, some children take ADHD medication to mitigate symptoms, which have both positive and negative outcomes. The most notable reason children take ADHD medication is so that they can show positive changes in grades and the ability to concentrate (Parker, 2005). Recent studies indicate if a child adheres to a consistent dosage of stimulant medication they will show improvements in academic performance (Marcus & Durkin, 2011). Thorell and Dahlström (2009) found that when

children begin to see the positive effects they typically do not wish to discontinue ADHD medication usage. Students also reported that taking ADHD medication reduced their disruptive behaviors and improved peer relationships (Singh et al., 2010b). Barbaresi, Katusic, Colligan, Weaver, and Jacobsen (2007) conducted a longitudinal study of 370 children diagnosed with ADHD who took ADHD medication from 1976–1982 to understand long-term outcomes. They found these children had lower absenteeism rates, improved reading achievement, and decreased grade retention.

To study specific experiences of children who took ADHD medication, Singh et al. (2010b) studied 16 young adults diagnosed with ADHD (14 boys and two girls ranging in age from nine to 14) who participated in a focus group to give specific feedback on their medication usage. The children reported being more positive about their medication usage in social settings while on ADHD medication rather than just with their school work (concentration). Medication helped the participants to, “calm down, think first before acting out and not to feel angry” (p. 188). Few participants indicated any feeling of not being themselves (common side effect of ADHD medication) and gave positive feedback towards self-management.

ADHD medication can also negatively affect children in a myriad of ways. Studies have concluded that ADHD medication commonly causes appetite suppression and sleep disturbances while uncommon side effects can include weight loss, irritability, tics, anxiety, and headaches (Bates, 2009). This typically happens when a tolerance for a particular dose has been created resulting in a subsequent need for increased and perhaps dangerous dosage levels of stimulant medications (Erler, 2016). It is not uncommon for parents to discontinue ADHD medication, typically in the first year, citing both

psychological effects and inadequate effectiveness (Toomey, Sox, Rusinak, & Finkelstein, 2012). Finally, Borg (2009) found that children taking ADHD medication exhibited negative effects on social interactions compared to their non-ADHD counterparts. Though ADHD medication has shown significant academic improvements for students, they have not proven to be effective in improving standardized test scores or overall academic attainment (Loe & Feldman, 2007).

For children diagnosed with ADHD who did not take ADHD medication, their school outcomes are typically not as positive as students not diagnosed with ADHD or students diagnosed with ADHD who took ADHD medication (Barkley, 2002). Biederman et al. (2004) studied 259 children diagnosed with ADHD and 222 children not diagnosed with ADHD and found those with ADHD and executive functioning disorder (EFD) or “the ability to maintain an appropriate problem set for attainment of future goals” (Welsh & Pennington, 1988, p. 201), compared to the control group, were at a greater risk for grade retention and academic underachievement. Children diagnosed with ADHD who did not take medication also show relatively low rates of graduation and post-secondary education (Loe & Feldman, 2007). In addition, although the research is limited, children with ADHD also experience educational difficulties in college indicating they are at greater risk for academic and psychological difficulties (Weyandt & DuPaul, 2006).

Complementary and Alternative Medical (CAM) Treatments

Many people believe that medication is the only way to treat ADHD symptoms. While there is much evidence to support these claims (Marcus & Durkin, 2011), opposing research (Pellow et al., 2011) favors alternative treatment methods. Still others,

representing a third viewpoint, believe the most effective way to reduce ADHD symptoms in children diagnosed with ADHD is by employing a combination of both behavioral and pharmacological interventions (Subcommittee on Attention Deficit Hyperactivity Disorder, 2011, Pehlam, 1999; Pfiffner, Barkley, & DuPaul, 2006; Ryan & Katsiyannis, 2009). The National Survey of Children's Health was used utilized to check the prevalence of children with ADHD and ADHD pharmacological usage in children ages 2-5 (Danielson et al., 2017). The survey indicated that only one in three children aged six or older received both stimulant ADHD medication and behavioral therapy to control ADHD symptoms. This combination of complementary and alternative medical treatments (CAM) achieves the absolute best outcomes for controlling ADHD symptoms. Complementary and alternative medical (CAM) treatments such as the combination of behavioral therapy and medication have been shown to be the most effective way to treat ADHD symptoms compared to either interventions or ADHD medication alone (Brown et al., 2005) Although this practice has been shown to be highly effective, only one in three students diagnosed with ADHD receives behavioral therapy along with ADHD medication in the United States (CDC, 2013). CAM treatments also are cost effectiveness due to taking less medication, and that treatment can be available throughout the day instead of only during the hours when medication is effective (Pelham & Gnagy, 1999). The reason the combination of ADHD medication and behavioral interventions are seldom used together is, as Dr. Howard Abikoff, director for the institute for ADHD and Related Disorders at the New York University Child Study Center, suggested, because achieving the same positive result with school and home-based treatments is extremely difficult (Boyles, 2005).

This type of treatment is commonly referred to as the gold standard because of its widespread base of researched outcomes (Daley, Creed, Xanthopoulos, & Brown, 2007). Most commonly CAM treatments minimize symptoms and add benefit to conventional treatments (Sinha & Efron, 2005). Lofthouse and Arnold (2011) discussed the overwhelming research and positive results seen in patients taking both medical stimulants and behavioral therapy, but also brought to light several alternative CAM treatments, many with little scientific research backing, for patients not wanting to subject themselves or their children to medication. They showed how medical stimulants given to patients suppressed their appetites and resulted in a need for alternative supplement-based treatments, which greatly benefited the patient, mostly to mitigate mineral deficiencies. They found out of 14 various CAM treatments, only two were sufficient to consider. Their research suggests that students diagnosed with ADHD may have mineral deficiencies, resulting in ADHD symptoms (Lofthouse & Arnold, 2011). Because of these mineral deficiencies, Lofthouse and Arnold suggested giving these students mineral supplements and trying an elimination diet, which pin points certain foods, particularly with high levels of sugar, which may cause ADHD symptoms.

Other less successful ADHD alternatives to medication may support certain children. Wood et al. (2007) researched alternative methods to normal pharmacotherapy ADHD medication and suggested continued exploration in this area to treat ADHD symptoms. Wood et al. (2007) showed a vast amount of positive research regarding pharmacotherapy medication. Since 25% of patients do not respond to typical medical ADHD treatment, they suggested administering medications like antidepressants tricyclic's, Selective Serotonin Reuptake Inhibitors (SSRIs), and anti-hypertensives

(clonidine and guanfacine). Wood et al. found these treatments to be somewhat beneficial, but again stated that traditional medication methods continue to show the majority of benefits to fight the symptoms of ADHD and added that parents take an active role in monitoring how the child does to see maximized benefits.

Non-medical holistic treatments have been used due to the growing concern to addiction to medication (Pellow et al., 2011). Pellow et al. reviewed CAM-like limited diet, exercise, and mineral supplements to fight the symptoms of ADHD. CAM methods offer, as Pellow et al. explain:

many alternatives to conventional medications. Treatment should be tailored to each individual. Dietary corrections, exercise therapy, and nutritional supplements all offer potential benefits to the ADHD child.

Herbal remedies that are indicated for restlessness, anxiety, and depression may offer viable alternatives to pharmacotherapy, although further research related to children diagnosed with ADHD is required. (p. 333)

These alternatives also support growing research showing alternative methods to medication for ADHD patients (Pellow et al., 2011).

DuPaul and Weyandt (2006) outline several ways that CAM treatments, specifically medication combined with behavioral interventions, can positively support students diagnosed with ADHD. First, DuPaul and Weyandt suggested using proactive measures such as choice making activities, allowing a student to choose between two activities, or using peer tutors, pairing two students so one assists the student with ADHD on both academic or on-task reminders. Peer tutoring is similar to the more extensively researched technique, class wide peer tutoring (CWPT; Greenwood, & Delquadri, 1995).

CWPT has been found to improve academics in math, spelling, and reading not only for students diagnosed with ADHD, but all students (Shinn, Walker, & Stoner, 2002).

DuPaul, Ervin, Hook, and McGoey (1998) studied CWPT effects on both academic and behavioral improvements for students diagnosed with ADHD. Their study included 19 students ranging from first through 5th grade in a general education setting. Results showed an increase of 21.6% in on task engagement. In addition, post-test scores increased from an average of 55.2% to 73% when CWPT was utilized (DuPaul et al., 1998).

Teacher based interventions. Teacher factors on the outcome of students diagnosed with ADHD has historically been lacking in significant studies on ADHD (Sherman, Rasmussen, & Baydala, 2008). Sax and Kautz (2003) found that school personnel are typically the first people who suggest ADHD symptoms to parents, and they influence that medication usage as well. Hosterman, DuPaul, and Jitendra (2008) found that, while African American and Hispanic students are over identified with evaluations and placement in special education, White students are disproportionately under identified with ADHD compared to their racial/ethnic minority counterparts.

In addition to stimulant medication, teachers can support students diagnosed with ADHD by teaching them about conflict resolution, improved communication and organization, and individual instructional support (Hamilton & Astramovich, 2016). Doggett (2004) found that classroom interventions related to higher cognitive outcomes while medication usage provided better behavioral outcomes. For school-based interventions to work, the teacher must be fully on board (Pfiffner et al., 2006). They suggested giving specific recognition and reimbursement for supplies purchased to

support these interventions. Since schools typically see ADHD as a weakness that can lead to negative school experiences for students with ADHD (Jenson, Olympia, Farley, & Clark, 2004), Climie and Mastoras (2015) suggested educators use a strength-based approach of positive psychology to view and support students with ADHD. The strength-based approach does not deny the challenges these students face in school; rather, it requires an equal approach to considering their strengths and successes as well (Rhee, Furlong, Turner, & Harari, 2001). Specifically, Climie and Mastoras said that using positive psychology, “brings attention to an alternative perspective of emphasizing functioning and well-being that, when applied to children diagnosed with ADHD, may provide them with more balanced support, capitalizing on areas of strength, enhancing well-being, and fostering resilience” (p. 229).

Teacher attitudes. In most cases, Sherman et al. (2008) indicated that teachers’ beliefs and attitudes toward students diagnosed with ADHD have a drastic impact on the success of students with ADHD. Specifically, they found that, “Teachers who demonstrate patience, knowledge of intervention techniques, an ability to collaborate with an interdisciplinary team, and a positive attitude towards children with special needs can have a positive impact on student success” (p. 347). Adversely, teachers who have a high to average knowledge about students with ADHD sometimes also predicted they would show more disruptive behaviors in class and indicated having less confidence in themselves when managing discipline issues associated with these students (Ohan, Cormier, Hepp, Visser, & Strain, 2008).

Diet and supplements. Uebel-von Sandersleben et al. (2014) suggested that use of vitamins like Ginkgo can support brain electrical activity for students with ADHD and

there is evidence of the effectiveness of giving children free fatty acid supplements (Sonuga-Barke et al., 2013). In addition, modifying a child's diet may be an effective treatment to improve attention and self-control (Harding, Judah, & Gant, 2003; Nigg, Lewis, Edinger, & Falk, 2012). Restrictive elimination diets, removing specific food from a child's diet that causes ADHD symptoms to worsen, have been shown to be effective (Pelsser et al., 2011). In a randomized study with 100 children, 50 given a strict, controlled diet and 50 comprising a control group, 32 (64%) of the 50 given the strict diet showed a reduction in ADHD behaviors. Further, when restricted foods were re-introduced, ADHD symptoms began to increase. In addition, while only effective in about one-third of cases, nonetheless, there has been some success with giving children food with reduced or no artificial food coloring (Sonuga-Barke et al., 2013). Using a meta-analysis examining current research on dietary treatment for children with ADHD Millichap and Yee (2012) argued that dietary restrictions, specifically additive free and elimination diets, are time consuming and only support effectiveness in selected patients. Alternatively, they suggested that, "A greater attention to the education of parents and children in a healthy dietary pattern, omitting items shown to predispose to ADHD, is perhaps the most promising and practical complementary or alternative treatment of ADHD" (p. 330).

Exercise. Den Heijer et al. (2017), in a meta-analysis of over 25 studies on students with ADHD, found that acute effects of regular aerobic exercise can significantly reduce ADHD symptoms in children and adults. Exercise also increases the level of dopamine in the brain, which, in the short-term amounts to reducing ADHD symptoms (Den Heijer et al., 2017). Den Heijer et al. categorized the studies based on

three variables, (a) exercise type (cardio vs. non-cardio), (b) duration of effects (acute versus chronic), and (c) outcome measures (cognitive, behavioral/social-emotional, and physical, or neuro-physiological). Results indicated that after cardio exercise (treadmill running, cycling), “several positive effects on [higher] cognitive function of children diagnosed with ADHD were found” (p. 56). Further, Chang, Liu, Yu, and Lee (2012), Hartanto, Krafft, Iosif, and Schweitzer (2015), Medina et al. (2010) Pontifex, Saliba, Raine, Picchietti, and Hillman (2013), and Smith et al. 2013 all found that positive effects included increases in response inhibition, cognitive control, attention allocation, cognitive flexibility, processing speed, and vigilance immediately after completing aerobic activity. Smith et al. (2013) found, however, that with a high level of physical activity there were no improvements in initial aggression, following directions, and language use.

Den Heijer et al. (2017) also discovered several chronic, or long-term, positive effects of aerobic exercise in children diagnosed with ADHD. These effects included: (a) improvements in cognition attention, (b) executive functioning specifically with response inhibition, (c) verbal working memory, and (d) cognitive speed (Chang et al., 2014; Choi, Han, Kang, Jung, & Renshaw, 2015; Gapin & Etnier, 2010; Kang, Choi, Kang, & Han, 2011; Smith et al., 2013; Verret, Guay, Berthiaume, Gardiner, & Béliveau, 2012; Ziereis & Jansen, 2015). In a long-term setting, aerobic exercise supports people diagnosed with ADHD by allowing them to have improved behavior, increased levels of executive functioning, faster processing speed, and better memory (Kamp, Sperlich, & Holmberg, 2014). For children, specifically, parent-teacher ratings indicated better behavioral

outcomes, reduced ADHD symptoms, and a reduction in anxiety and depression (Den Heijer et al., 2017).

Mindfulness. Training on mindfulness in both children and adults has also shown to be beneficial to students diagnosed with ADHD (Smalley et al., 2009). Mindfulness teaches children to self-manage their symptoms by focusing on self-reinforcement, problem solving, cognitive restructuring, and self-direction (Singh et al., 2010a). These trainings also support parents to help the child with compliance resulting in even more positive results when given in conjunction with the child (Singh et al., 2010a). When both parents and children prescribed to mindfulness trainings, both reported desirable effects of improved attention and a decrease in ADHD related behaviors (Van der Oord, Bögels, & Peijnenburg, 2012). Van de Weijer-Bergsma, Formsma, Bruin, and Bögels (2012) also found that in adolescence, mindfulness trainings have shown to decrease behavior and attention problems, improve executive functioning (set of mental skills to get things done), and increase positive reports from teachers. Burke (2010), in a review of current literature on mindfulness training with children diagnosed with ADHD, summarized his findings by stating, “all studies investigated feasibility and acceptability of mindfulness-based interventions with the populations investigated, and overall conclusions indicate that interventions were acceptable and well-tolerated by the participants, and no studies report any adverse effects” (p. 136).

Other alternatives. Brain games, meditation, and pharmacotherapy are used as alternative treatments for ADHD. For instance, the Nintendo DS game Brain Age (NDSBA), used in conjunction with medication in fifth through 11th grades, enhanced students’ focus control in school and had a positive effect on executive functioning

(Wegrzyn et al., 2012). Wegrzyn et al. noted approximately 20% of students with ADHD do not respond to medication, thus suggesting children need alternative methods to stimulate the prefrontal cortex, enabling them to focus. They hypothesized that daily brain-based games could help control executive functioning in the brain, thus leading to better control of emotions, control thinking, and behavior. Results indicated improvements (four out of ten students) in the executive functioning of the student and with parent observation (nine out of ten). They also found, however, that teachers reported very little to no change in the students' ability to focus. These findings indicate effectiveness within the home and school settings, albeit less in the school setting. While research on alternative methods is relatively new (Mayo Clinic Staff, 2013), there is a need to look toward other viable methods to treating students with ADHD, specifically in the classroom.

Conclusion

Children diagnosed with ADHD tend to have a much harder time in school than those without ADHD. Specifically, non-medicated children diagnosed with ADHD, can struggle to pay attention, exhibit erratic behaviors that can lead to punitive measures, and labor to make grades (Loe & Feldman, 2007). The research reviewed has given a clear indication that medication is still the primary way of treating ADHD symptoms (Fabiano et al., 2009). Although combining behavioral accommodations with medication is the gold standard (Subcommittee on Attention Deficit Hyperactivity Disorder, 2011), medication reigns supreme as the single best way to mitigate ADHD symptoms. Positive effects of ADHD medication support a student's ability to pay attention, improve behavior, and on-task abilities. Medication, however, is a short-term fix for ADHD

symptoms that requires daily dosing, and there is evidence of common negative effects (National Institute of Mental Health, 2016; Bates, 2009). Non-medical treatments seem to be a long way away from being the norm (Barnes, Bloom, & Nahin, 2008).

Nonetheless, research sheds positive light on the fact that alternative methods teach students and adults with ADHD how to cope with their symptoms rather than relying on medication (Den Heijer et al., 2017). This can enhance support for both groups and reduce their reliance on medication (Pelham & Gnagy, 1999).

The research provided indicates that children diagnosed with ADHD have an increased chance of developing other physical addictions including drugs, alcohol, tobacco, or other substances (Fatseas et al., 2015) or addictive behaviors such as gambling (Abouzari et al., 2015). The research reports that children diagnosed with ADHD typically have negative views of themselves (Mitchell et al., 2013). In order to counteract these addictions and negative thoughts, researchers have explored alternative treatments to medication including CAM approaches, CBT, and other brain-based games (Oortmerssen et al., 2013). Additionally, exercise such as running or cycling which use high levels of cardiovascular activity to increase dopamine in the brain have been reported to provide an excellent alternative means of mitigating the effects of ADHD (Den Heijer et al., 2017). Although research supporting alternative methods is limited, current medications have proven to be successful (Barkley, 2014) in managing symptoms, and continue to be the treatment of choice.

There is a plethora of articles and books about ADHD, treatment options for children and adults, negative side effects of ADHD medication, and new evidence that supports some positive outcomes with non-medicated ways to treat ADHD. The

researcher, however, found little evidence on the school experiences of non-medicated children diagnosed with ADHD.

Conceptual Framework

A conceptual framework is a representation of the goal of the study that drives data collection and analysis. Specifically, Shields and Rangarajan (2013) defined a conceptual framework as, “the way ideas are organized to achieve a research project's purpose” (p. 24). Eisenhart (1991) added that a conceptual framework is like, “a skeletal structure of justification, rather than a skeletal structure of explanation” (p. 209). Eisenhart further explains, “Crucially, a conceptual framework is an argument that the concepts chosen for investigation or interpretation, and any anticipated relationships among them, will be appropriate and useful, given the research problem under investigation” (p. 209). This particular conceptual framework was applied to the study to provide the reader a frame or context to understand how the researcher analyzed the qualitative data and interpreted results from the analysis.

In this study, the researcher use a constructivist paradigm to guide the study and analyze the data. Bodner (1986) defined constructivism as “knowledge is constructed in the mind of the learner” (p. 873). Piaget’s (1985) theory of constructivism applied to education requires teachers to view students as learners who build knowledge structures to make meaning of their experiences and develop a better sense of understanding themselves. Ackerman (2001) supported Piaget’s views of constructivism by stating:

Children’s ways of doing and thinking evolve over time, and under which circumstance children are more likely to let go of—or hold onto—their currently held views. Piaget suggests that children have very good reasons not to abandon

their worldviews just because someone else, be it an expert, tells them they're wrong (p.1)

Using this constructivist paradigm, which asserts we use experiences to make meaning and construct knowledge, the researcher interviewed participants who did not take ADHD medication to develop a deep understanding of their unique experiences. This approach facilitated identifying correlations in the literature and allowed room for factors that influenced these individual's experiences that was not represented in extant research. Within this study, the researcher focused on five factors that affect the school experiences and outcomes of children diagnosed with ADHD who did not to take ADHD medication. As illustrated in Figure 1, the school experiences and outcomes of children diagnosed with ADHD are the interaction and combination of: (a) the degree of knowledge the teacher has about children with ADHD (this includes accommodations, state accountability, and interventions); (b) the type of support and knowledge the child's parents have about ADHD (this includes availability of providing home behavioral therapy, pharmacological medication, or providing alternatives to ADHD medication); (c) the existence of comorbid mental conditions such as anxiety or depression that may be misdiagnosed as a specific learning disability or disruptive behavioral disorder; (d) peer interactions and relationships in regard to their feelings about ADHD and children with ADHD's school experiences compared to their peers without ADHD, and (e) the different types of ADHD treatment options provided to the child, all occurring within the sociocultural cultural environment of race/ethnicity, gender, culture, and socioeconomic status.

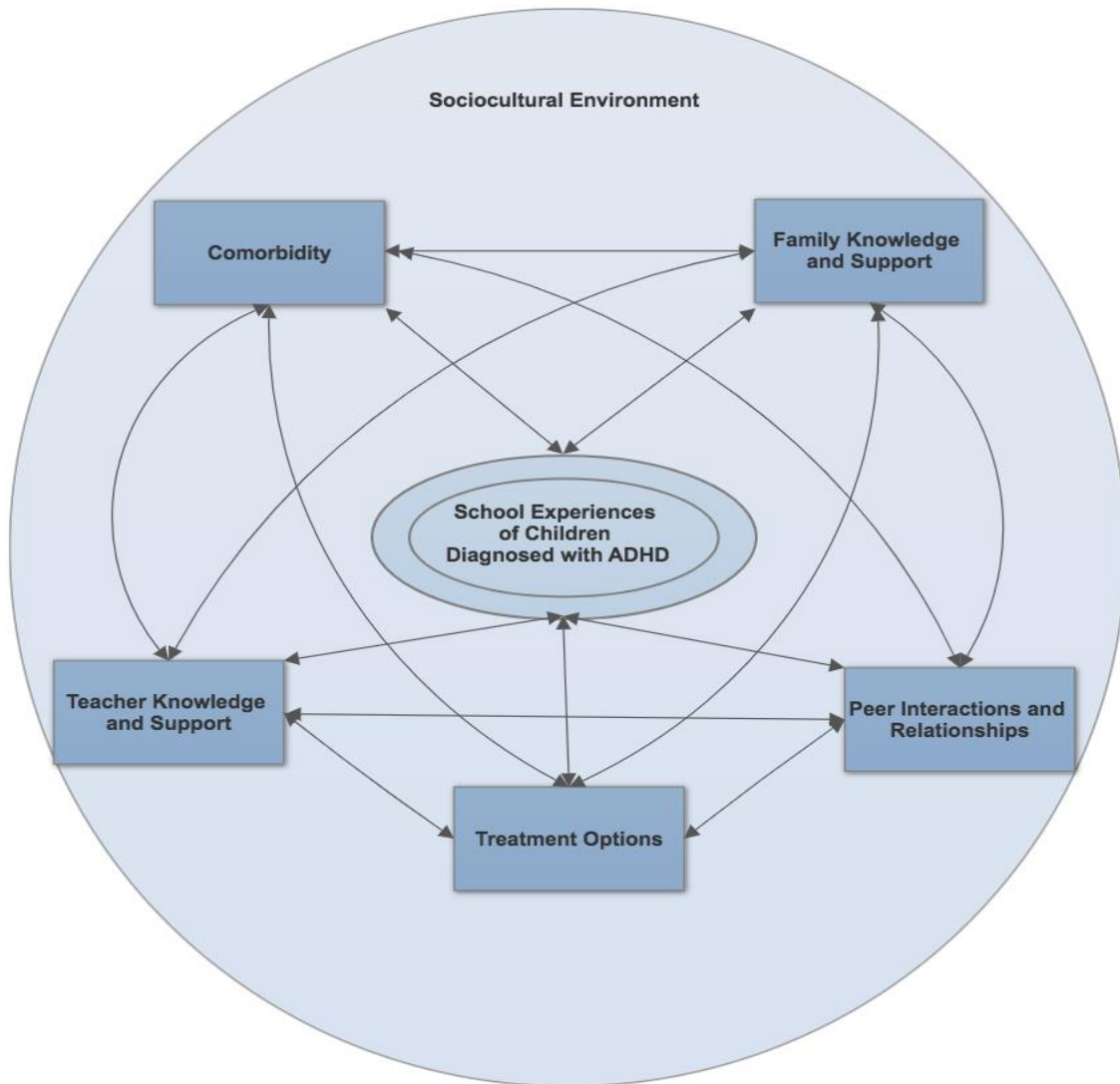


Figure 1. Conceptual Framework.

These factors are not simply linear paths or directions, but a complex combination of interactions and influences on school experiences. To grasp the complexity, consider the following example. Parents had an elementary school child who was just diagnosed with ADHD. Opposed to medication, the parents decided to research alternative solutions online to treat their son's ADHD symptoms. Through their research and in conjunction with their pediatrician, they learned the child also had a disruptive behavioral disorder (Gut et al., 2012) that influenced how they provided behavioral modifications at

home. Equipped with this knowledge, they showed his current and future teachers how to use behavioral modifications in school to successfully manage his ADHD symptoms. The child grew up and learned to successfully manage his ADHD and disruptive behavioral disorder symptoms through years of behavioral therapy and classroom accommodations. Conversely, another child was diagnosed with ADHD by a pediatrician based on a teacher's observation of strong tendencies on an ADHD screener. The parent, working two jobs and earning little money, could not leave work to take her child to the pediatrician for an assessment. When her child was finally diagnosed with ADHD, she could not afford the medication. Without the ADHD medication, the teacher felt the only way to deal with the child was to continually call administration for behavioral support, resulting in the child spending much of his time in the principal's office. While these are just two examples, they represent real and varied ways children diagnosed with ADHD who do not take medication can experience school.

III. METHODOLOGY

Introduction

This chapter describes the processes and methods selected to explore the school experiences and educational outcomes of students diagnosed with ADHD (attention deficit hyperactivity disorder) who did not take ADHD medication to manage their ADHD symptoms. ADHD is a common neurodevelopmental disorder that affects many children today (CDC, 2016). The CDC has reported that rates of students diagnosed with ADHD have risen from 7.8% in 2003 to just over 11% in 2011. Some theories suggest the reason for increased diagnoses is related to higher testing standards in many states. Researchers have observed a distinct correlation between states with high penalties for state mandated tests and funding and high rates of ADHD diagnoses (Miller, n.d.). While many children are diagnosed with ADHD in early grade school, suggesting harmonization with school (Attention-Deficit, 2011), others believe a diagnosis could just as easily happen earlier (Arnett et al., n.d). Healthcare professionals argue there is no single way of diagnosing ADHD partly because it exhibits symptoms in common with other ailments like sleep deprivation, depression, anxiety, and various learning disabilities (CDC, 2017).

Research Questions

The aim if this research was to fully understand the individual school experiences and outcomes of children diagnosed with ADHD who did not take ADHD medication in school. This allowed the researcher to develop a deeper understanding of the implications of their choice to forego prescription medication to manage ADHD symptoms and its impact on academic performance and specific relationships. The

primary research question guiding this study was: What were the school experiences and educational outcomes of students diagnosed ADHD who did not take medication? It was supported by these subordinate questions:

1. What were the decisions regarding the use of ADHD medication?
2. How did participants how control their ADHD symptoms during their school years?
3. What were participants' relationships with parents, peers, and educators during their school experiences?
4. What support was provided in school and home?
5. What were the educational trajectories of participants over time as they managed symptoms through non-medicated means?
6. What were the differences in participants' school experiences and outcomes by race/ethnicity, gender, socioeconomic status, and/or cultural background?

Methodological Approach

When deciding between qualitative and quantitative data collection, the researcher had to take into account the research questions that rely heavily on the school experiences of each participant. At its most basic form, qualitative studies frame their study using words whereas quantitative research primarily collects data using numbers (Creswell, 2012). Quantitative studies begin with a theory in mind and then build a hypothesis that is tested (Creswell, 2012) and typically gather data via pre-determined surveys and questionnaires that attempt to quantify precise data. Quantitative research also tends to use post-positivist assumptions that lead the study (Creswell, 2012).

Qualitative data collect, conversely, builds a theory from open-ended questions, interviews, and themes or pattern interpretation (Creswell, 2012). Savin-Baden and Major (2013) encourage using a qualitative approach to understand the lived experiences of a particular group of people. Qualitative research provides the opportunity to delve into unique individual experiences while comparing differences and similarities among a small group of participants. This cross-participant comparison is an effective means to explain complex phenomena (Savin-Baden & Major, 2013). The ability to focus on individual differences or filter out specific instances that are unique to a participant to evaluate relationships between participants' data (Denzin & Lincoln, 2003) adds depth and richness to the findings of qualitative research. Brannen (2005) added that the researcher must take into account his/her influence with the "researcher and the research encounter" (p. 174) and his/her interpretation of the data analysis. This was discussed at length in the data analysis section of this study.

A qualitative approach was chosen due to the objective to develop an in-depth understanding of the school experiences of individuals diagnosed with ADHD who were provided alternatives to prescription medication to manage symptoms. Denzin & Lincoln (2011) stated that qualitative research "studies things in their natural setting and attempts to interpret the phenomena through the meaning that people bring to them" (p. 4). Quantitative data collection and analysis, beginning with the theory in mind, does not allow the researcher to develop particular themes throughout the data collection and analysis. Other downfalls to quantitative research include the exclusion of meaning and discovery in inquiry (Guba & Lincoln, 1994). In addition, the researcher wanted to

report specific words used by each participant to give each reader their own ability to interpret each participant's school experiences.

Analytical Paradigm

The epistemological stance guiding this study was constructivist in nature. Constructivism posits that "all knowledge, and therefore, all meaningful reality as such is contingent upon human practices, being constructed in and out of interaction between human beings and their world, developed and transmitted within an essentially social context" (Crotty, 1998, p. 42). Duffey and Jonassen (2013) explained that while constructivist theory is based on objectivist thought and holds that there are real experiences of which we all are part, it differs from objectivism in its belief "that meaning is imposed on the world by us, rather than existing in the world independently of us" (p. 4). Guba and Lincoln (1994) added that constructivism shows that "elements are often shared among individuals and even across cultures" (p. 110). Children diagnosed with ADHD experience school in a variety of ways that may include both positive and negative school experiences and outcomes. Utilizing the constructivist paradigm allowed the researcher to collect and analyze (a) individual narratives about their school experiences, and (b) across narratives to create themes that encompass all of the participants' school experiences and outcomes related to managing ADHD symptoms without medication.

Theoretical Perspective

Using phenomenology as the theoretical perspective, this study describes the "common meaning" among individuals' lived experiences who were diagnosed with ADHD as a child and did not take medication (Creswell, 2012, p. 76). Van Manen

(2016) described phenomenology by stating it “grasps the very nature of the thing” (p. 177). It “step by step, attempts to eliminate everything that is a prejudgment, setting aside presuppositions, and reaching a transcendental state of freshness and openness, a readiness to see in an unfettered way” (Moustakas, 1994, p. 46). Phenomenology has been practiced, largely unknowingly, for centuries beginning with Buddhist and Hindu philosophers who contemplated various states of consciousness achieved through meditation (Smith, 2003). It was not until the early 20th century that Edmund Husserl, a German philosopher, established it as a common mode of philosophy. In this case, the phenomenon of focus was the lived experiences of children diagnosed with ADHD who did not take ADHD medication to answer to the research questions and highlight experiences that arose, which were not described in the literature.

A phenomenological approach was used to gather data that illuminate the experiences of a small group of people to improve our understanding of how they managed ADHD symptoms without prescription medication, and the impact that choice had on academic and relational outcomes. This approach represented the optimal method to examine the unique school experiences and outcomes of children diagnosed with ADHD who did not to take ADHD medication because it “reduce[s] individual experiences with a phenomenon to a description of the universal essence” (Creswell, 2013, pg. 76). The intended outcome was simple, look for common experiences. This study was concerned with factors related to the school experiences and outcomes of children diagnosed with ADHD who did not to take ADHD medication, the alternative ways participants managed their ADHD symptoms, and the impact this choice had on relationships with parents, peers, and educators. It was important to collect these

qualitative data, look for specific correlations to research, and synthesize commonalities to understand what experiences may have been hidden from past research.

The researcher utilized the literature review to explore the constructs in the conceptual framework (Figure 1) to provide scholarly context to each section, and to show how each section may or may not have influenced each other. For example, teacher interpretations or knowledge of children with ADHD could have directly affected how successful the student was in the classroom. Combined with a parent's knowledge or lack thereof, this could have even more of an effect on the child's school experiences and outcomes. When reading each participant's interviews, the researcher used this conceptual framework to develop themes that became the basis for chapter four.

Research Design

Site and Participant Selection

Site selection. Since participants were identified via an online forum and might have lived anywhere in the United States, interviews were planned to take place online, in person, by phone, Skype, or Facetime. Online interviews were conducted utilizing an Apple MacBook Pro and in a private area within a public space (public library, school, or coffee shop) or at the researcher's home.

Participant selection. In this case, a purposeful criterion sampling (Patton, 1990) was utilized to ensure each participant met the required specific needs of the study. Purposeful sampling enabled the researcher to select a group of people who were specifically involved in a common phenomenon (Creswell & Plano-Clark, 2011) and who represented information rich cases (Patton, 2002). According to Merriam (2009), "Purposeful sampling is based on the assumption that the investigator wants to

discover, understand, and gain insight and therefore must select a sample from which the most can be learned” (p. 77). Similarly, according to Patton (1990), purposeful criterion sampling is typically done in information rich areas in which, “one can learn a great deal about issues of great importance to the purpose of the research thus the term *purposeful* sampling” (p. 169).

Eight young adult participants over the age of 18 who were diagnosed with ADHD in elementary school but did not take medication to manage their ADHD symptoms, were interviewed in this research study. I chose elementary school age as the diagnosis timeframe because it provided a more complete history of the entire school experiences. Variations in race, socioeconomic status, gender, culture, and ethnicity were also present but were not specifically identified when choosing participants for this study. Discussions about socioeconomic class were specifically asked during the interview process to obtain qualitative data to answer the final research question.

Using my university email, participants were initially sought via an online ADHD forum by first establishing authorization through the International Review Board (IRB) and then from the online forum to conduct participant selection. Once authorization was granted I planned to post feeds within the forum looking for participants who fit the context of the study. Once participants had been selected, they acknowledged accord with the confidentiality agreement by both verbally consenting and sending a PDF of their signed consent form. It was anticipated this approach would identify a wide range of people to contribute to the richness of the data. Acquaintances were also considered as participants for this study. To gather

acquaintances, I asked them to participate in this study in person, via university email, phone, or social media. Lastly, I also gathered participants through the email system of a Central Texas university. I first contacted the university to complete all required IRB paperwork to ensure confidentiality and that the code of ethics was not violated. Once approval was granted, I drafted an email explaining the purpose, criteria for participating, and measures to ensure confidentiality. I only gathered names of potential participants to communicate with them via phone. Once each participant had been identified, he or she was asked to provide consent as previously described.

The established study criteria were that participants were diagnosed with ADHD at some point in elementary school and did not to take prescribed ADHD medication throughout their schooling to this point. According to Marshall (1996) “The size of the sample is determined by the optimum number necessary to enable valid inferences to be made about the population” (p. 522). Polkinghorne (1989) indicates a sample size of eight participants should provide valid data to support transferability to similar groups (Polkinghorne, 1989).

Data Collection

Interviewing. Throughout the data collection process, guided interviews (Lichtman, 2012) were utilized to gather qualitative data that relate back to the guiding questions in this study and to ensure consistency and objectivity. Interviews were the main source of data collection because they provided the opportunity to acquire a more complete view of how each participant felt by asking for clarification or follow-up questions that pursued specific detail-rich responses (Creswell, 2013). Each interview was expected to last approximately 45 minutes. A semi-structured interview protocol

was used with each participant to gain an understanding of his or her school experiences with ADHD. Prior to the initial interview, I obtained informed consent from each participant indicating they understood the purpose of the research, their right to terminate participation at any time, and the specific precautions I took to ensure confidentiality. Interviews were recorded on an iPhone for subsequent transcription. Recording audio on a phone ensured a very accurate account of the participant's responses and provided a reliable record that could be accessed at a later time for clarification or verification (Opdenakker, 2006). However, one of the primary disadvantages of an audio recording is the dependability of the recording device. If the device malfunctions or is lost qualitative data could also be lost or compromised (Opdenakker, 2006). To address this issue, I recorded all interviews on a backup device and transcribed the interviews expeditiously to further minimize the potential for data loss.

In this particular study, semi-structured interviews were utilized in an informal setting to gather the qualitative data. Merriam (1998) confirmed this type of data collection as a fundamental way of conducting qualitative research. Weiss (1994) stated that, "Interviews provide the fullest, most detailed description possible" (p. 9). In this case, the phenomenon of focus was the lived experiences of children diagnosed with ADHD who did not take ADHD medication in order to look for specific answers to the research questions and highlight experiences that arose, which were not covered in the research questions. The interviews also investigated the role parents played in both diagnosis of ADHD and how they supported their child without using stimulant medications. In addition, I collected qualitative data to understand the role each student's

school played in first being diagnosed with ADHD and, subsequently, the decision to decline prescription medication or adjust their classroom environment to support students with ADHD. This helped gather deeper information about the phenomenon being studied and its particular features (Creswell, 2013).

Interview protocol. The protocol consisted of seven questions that asked about their school experiences and outcomes; follow-up questions were asked for clarification purposes. Questions ranged from basic information about each participant (personal information they were willing to provide), to childhood experiences and diagnosis of ADHD, how their friends and teachers responded to their ADHD diagnosis and symptoms, the role of each participant's parents or guardians, and ways each participant used to manage their ADHD symptoms. Data were also collected in the form of follow-up interviews as questions arose during data coding and analysis. Each follow-up interview consisted of approximately 60 minutes and utilized a follow-up interview protocol to expand on either answers previously provided or to specifically inquire about themes that may not have been addressed. I piloted the interview guide on other doctoral students to ensure validity and reliability of the research questions and confirm the questions were understood.

Field Notes

Field notes were also taken after each interview. Notes included reflective memos of each interview and subsequent follow-up interviews and were written immediately following interviews in order to aid in the understanding of what I was discovering and to identify questions for follow-up interviews. As with any research study, a certain level of unknown factors had to be taken into account (Creswell, 2013). I

had a limited view of the subject's psychological background. Participants might have been diagnosed with a comorbid (Reif et al., 2011) condition or any of several other mental disabilities, potentially clouding findings.

Data Confidentiality

While referring to participants, I used pseudonyms in order to keep identities hidden. All interviews and qualitative data were stored on a password-protected computer. Any hardcopies of data collection were kept in locked storage in my home. No other person has had access to the qualitative data unless my university advisor requested it. All data relating to this research will be kept for five years and then will be destroyed.

Data Analysis

Procedures. I uploaded the qualitative transcription into the MAXQDA software, a computer program that organizes transcriptions to support the creation of codes and themes, and then begin to look for themes in the data. Each theme was comprised of subsequent themes that arose during this process. A second round of coding was initiated in order to look for additional themes (Saldaña, 2015). Interviews were transcribed and imported into MAXQDA qualitative data analysis software. MAXQDA helped me identify specific codes to categorize each participant's statements. Data analysis began with horizontalization (Moustakas, 1994) or searching for specific statements relating to the phenomena. From this, I looked for clusters of meaning (Creswell, 2013) to aggregate the data into meaningful sections. Coding followed, but was not be limited to, the research questions; it proved advantageous to follow other specific trends inherent in the interviews (Saldaña, 2015). Once coding was completed, I

summarized the participants' experiences in a written textual description (Creswell, 2013). The final overall analysis identified essential or invariant structures (Creswell, 2013) that described the phenomenon in sufficient detail that readers should become immersed in the feelings associated with the phenomenon.

Since this study was conducted using a constructivist approach, a means to study how people learn (Taskin-Can, 2011), I used the transcripts to help construct specific understandings of the participant's school experiences. Using the narratives of each individual and analyzing them across interviews helped me create themes and patterns. Each theme that was collected gave voice to the participants and allowed me to eventually base their stories on current research or develop new themes in research for children diagnosed with ADHD.

Credibility and trustworthiness. This study employed various trustworthy techniques to ensure they were valid and reduced my personal bias. Lincoln and Guba (1985) suggested a trustworthiness protocol in order for readers to understand my findings are "worth paying attention to" (p. 290). Credibility techniques were deployed to ensure the reader fully trusts the study. Thomas and Magilvy (2011) defined credibility as allowing readers to understand the experiences of the participants through participant's experiences. In this study I studied the credibility through the use of reviewing transcripts, reflexivity, or reflecting on my own bias toward the study (Creswell, 2013) and peer examination.

Member checking. Member checking involves "returning to the persons from whom data were generated to ensure that interpretations of the researcher are recognized by the participants as accurate representations of their experience" (Thomas & Magilvy,

2011, p. 153). In this study member checking was utilized to ensure I took the major interpretations or conclusions back to the participants to verify that they reflected what they reported in their interview. In addition, it gave participants an opportunity to correct errors and modify interpretations to ensure accuracy.

Positionality and potential research bias. Reflexivity was used to disclose my personal history with ADHD as I conducted this study and potential bias of the study's analysis and interpretations. Greenbank (2003) defined reflexivity as "The inclusion of reflective accounts and the acknowledgement that educational research cannot be value-free should be included in all forms of research" (pp. 798-799). I was diagnosed with ADHD as a child and took medication to mitigate my ADHD symptoms. While medication suppressed my ADHD symptoms, it also caused adverse side effects: feeling like a zombie, loss of appetite, and anti-social behavior. In short, my school experiences were mostly negative which held the potential to influence my interpretation of the study's toward negative school outcomes and experiences. Prior to embarking in this study, I assumed most school experiences and outcomes of children with ADHD were negative due to medication usage and school factors like teacher management and teaching techniques, and peer stigmatization of having ADHD.

Since I experienced similar phenomena, I used bracketing (Creswell, 2013) in order to "set the researcher aside so that the researcher can focus on the experiences of the participants in the study" (p. 78). I used a reflexive diary to write down my thoughts and perceptions and reexamine positions when an issue is raised (Wall, Glenn, Mitchinson, & Poole, 2004). In addition, I asked myself if I could consciously set aside my own bias to ensure bracketing could occur. When analyzing data, I asked as a

researcher, “Can we equip ourselves to adopt an attitude of conscious ignorance about the issue under investigation?” (Chan, Fung, & Chien, 2013). While some believe bracketing cannot completely eliminate research bias (Humble & Cross, 2010) it was used in this study to ensure the data are interpreted without the least possible bias, regardless of outcome.

Ethical considerations. Prior to gathering participants, IRB approval was granted to ensure the study met ethical definitions defined by the study university. Once approval was given, each participant was asked to review and sign an informed consent that outlined ethical considerations and, more importantly, explained their ability to withdraw consent at any time. The informed consent for his study is be found in Appendix B. Since I am conducted a study that had potential for negative effects (Schubert, Hansen, Dyer, & Rapley, 2009), it was important to include these findings in the coding and use them when formulating research. This also allowed the research to change direction in a way that was not necessarily intended but could be very useful, as necessary.

Summary

This chapter reviewed and outlined the methods used to conduct this study. First, it began with a brief explanation of ADHD in school and listed the research questions that guided this study. Next, a discussion of and rational for using qualitative data to direct the study’s data was explained followed by an explanation of the epistemological stance using the constructivist paradigm. A brief description of phenomenology was provided as the research design along with a discussion of the use of semi-structured interviews that were the basis of data collection. I then outlined the process of finding

participants and site selection. Next, data collection methods and procedures were provided to give the reader a full understanding of questions that were asked and methods of recording each interview. An in-depth explanation of the data analysis was provided for the reader to understand the process that was taken to develop common themes. Lastly, research bias and triangulation processes were explained to ensure full credibility of the final conclusion of data analysis. I hope this study has provided meaningful qualitative evidence that displays the school experiences and outcomes of children diagnosed with ADHD who did not to take medication to manage their ADHD symptoms.

IV. FINDINGS

Due to the dearth of literature on students who manage ADHD symptoms without medication, the purpose of this study was to understand their school experiences and outcomes, thereby adding to the literature on the topic. Specifically, the study sought to answer the following research question: What were the school experiences and educational outcomes of students diagnosed with ADHD who did not take medication? That inquiry was supported by these subordinate questions:

7. What were the decisions regarding the use of ADHD medication?
8. How did participants how control their ADHD symptoms during their school years?
9. What were participants' relationships with parents, peers, and educators during their school experiences?
10. What support was provided in school and home?
11. What were the educational trajectories of participants over time as they managed symptoms through non-medicated means?
12. What were the differences in participants' school experiences and outcomes by race/ethnicity, gender, socioeconomic status, and/or cultural background?

The chapter opens with a brief summary of the study and background information about each participant, their school experiences, and outcomes in managing ADHD symptoms without medication.

Following this introduction, the various themes that emerged during the qualitative data coding process are discussed. The analytical process involved the

following steps. First, I used the conceptual framework to guide the coding of the data (interview transcriptions) utilizing MaxQDA software. I then conducted follow-up interviews to dive deeper into answers provided by participants and to support themes and subthemes. I then referred to my own reflexive field notes to ensure I captured everything that I could (Creswell, 2013). Trustworthiness was enhanced through member checking (Thomas & Magilvy, 2011), allowing each participant the opportunity to review both the transcripts and data coding, and to verify the accuracy of the analysis. Next, I used a cyclical process to discover themes as they emerged from recurrent patterns observed in common experiences. I continued to explore for subthemes that could substantiate themes and provide meaningful context. Finally, themes were grouped for each individual research question in order to answer each one.

Recap of Study

Interview Location

In June of 2018, I posted a recruitment message on the Children and Adults with Attention-Deficit/Hyperactivity Disorder (CHADD) website. However, after receiving no responses during a two-week period, I recruited participants from a public university in the Southwest which offers a variety of bachelor, masters, and doctoral degrees. The current student body is large and diverse.

Introduction to Study Participants

During the summer of 2018, roughly 3,800 university students were randomly emailed inviting them to participate in a study regarding school experiences with ADHD (see Appendix A). Access to student email addresses was granted via the graduate college and was specifically limited to students between the ages of 18 to 20, who were

taking courses during Summer, 2018. Participant criteria for the study were: (a) to be a young adult (ages 18-20), (b) to have been diagnosed with ADHD in elementary school, and (c) to not have taken ADHD medication as a way to mitigate ADHD symptoms. Race was not a specific category so respondents may have included individuals with any variations of race or ethnicity. During the course of one week, over 90 individuals responded, expressing interest in participating in my study. Of the 90+ people who responded, 23 satisfied the participant criteria. From those, I selected the first eight to provide me with an adequate sample size. Two of the original eight did not respond to my initial interview request, so two alternates were selected from the remaining 15 potential participants. A demographic profile of the final eight participants (who are identified only by pseudonym) is provided in Table 1. Each participant completed an initial interview (see Appendix C) in early July 2018.

Table 1
Study Participants

Name	Gender	Age	Race	Subjective Social Status
Casey	Male	20	White	Middle Class
Betty	Female	20	White	Middle Class
Tammy	Female	19	African American	Middle Class
Natalie	Female	20	African American	Middle Class
Billy	Male	19	Hispanic	Working Class
Sarah	Female	20	African American	Middle Class
Jared	Male	19	African American	Middle Class
Brint	Male	19	White	Middle Class

Note: Subjective Social Status, as defined by Diemer et al., 2013, is a perception of one's social status relative to others.

After each initial interview I recorded field notes on a spreadsheet in order to examine additional data such as the willingness of each participant to provide personal

information, reactions to my questions, and anything else that seemed pertinent to the research questions and which could be useful to my study. In early August 2018, all eight participants completed a brief follow-up interview (see Appendix D) that dug deeper into their school experiences and personal views of being a person who grew up with ADHD. Each participant was paid \$50 for their completed participation. About half of the interviews and follow-up interviews were conducted via Apple Facetime and the other half in person in a public coffee shop.

Casey. A 20-year-old White male in his third year at the university, Casey is studying marketing with a minor in sales. He grew up in a town just outside a large city in the Southwest and graduated in the top 6% of his class (14th out of 240 students). He lived with both parents and has one sister who is three years older. Once in college he concluded that his high school may not have been the best in academics, stating, “I realized there were much better schools to go through” and “I had an average to low performing high school education.” On Saturdays and Sundays, he worked for a local business providing outdoor sports equipment to weekend enthusiasts. On a regular basis, Casey “tr[ies] to stay busy” and “stay[s] out of the house as much as possible” because he prefers to be outdoors playing rather than inside. He was diagnosed with ADHD combined type (hyperactive and inattentive) in elementary school. Describing his symptoms, he stated, “I tried to keep up doing the work but, just somehow couldn't do it. It was like it was almost turning into a different language or something.” Casey noted, in regard to his ADHD diagnosis, “[I] felt different and like an outcast in elementary to middle school.” He eventually started to become more comfortable with it as he aged

into high school. He said, “I could either use it as an excuse, or I could work through it and I decided to work through it.”

Betty. A 20-year-old White female who grew up in a town just north of a large urban area, attended an average sized high school, excelled in school, and finished high school at the top of her class, Betty is in her third year at the university, studying biology with a minor in biochemistry. She grew up with both parents and has a half-brother who is a little younger. Once she completes her degree she will attend “med school, and what I’m really interested in is probably emergency medicine; that’s always interested me.” She has been taking college level classes since high school and will graduate in less than four years. In her free time, she enjoys watching and playing basketball and sports in general. Betty was diagnosed with the inattentive form of ADHD when she was “seven or eight.” Describing her symptoms, she explained, it is “hard for me to focus and pay attention for long amounts of time.” When she learned of her ADHD diagnosis, it “definitely made a difference when I found out, because I viewed myself differently.” When getting off task she noticed she would think “Oh, this is because of my ADHD, so, it was definitely just like, getting back into the groove of things. Like, learning that I had something that was different.”

Tammy. Having grown up in a large city in the Southwest, Tammy is a 19-year-old African American female in her second year at the university. She is studying psychology with a criminal justice minor in hopes of becoming a criminal defense attorney. Describing her background, she explains that she lived in the same city her entire life and didn’t move until she attended college. Through her entire educational career, she attended schools in and around a large urban city. She lived with both parents

and has two sisters and one brother. In her free time, she enjoys “play[ing] sports, I like to write, I like to do media-related things like editing and film work, stuff of that nature.” She was diagnosed with the inattentive form of ADHD in third grade and her symptoms included a lack of focus. She stated, “I just couldn't focus, it wasn't going right, it wasn't really processing well with me.” Specifically, she would read a book and, “I wouldn't know what it was.” Describing her feelings about her ADHD diagnosis, Tammy attested, “I would say sometimes I wish I didn't have it.” One of the main reasons she feels this way is because “it's harder sometimes for me to focus or learn things, something that people can grasp in one class sitting, will take me all week and I have to practice outside of class, so sometimes, [it's] pretty frustrating.”

Natalie. A 20-year-old kinesiology major at the university, Natalie is an African American female who was born and began school in a large city in the Southwest but grew up and finished high school in another nearby large city where she lived with her mother. In her free time, she enjoys all types of sports and “...basically like I work out a lot, I play basketball, just basically like you know, like working out, exercise type stuff is basically it.” Natalie was diagnosed with ADHD in the second grade and describes her ADHD type as more “hyperactive.” She explains her personal feelings of ADHD as “like it was like it didn't concern me that I was, it was, I was normal.”

Billy. A 19-year-old Hispanic male, who grew up with his mother and step-father, two half siblings, a brother, and a sister, Billy is studying criminal justice in his second year at the university and working hard to graduate a full year early. He attributes his early graduation to taking “dual credit classes in high school.” Billy moved around a lot as a child. He “kind of grew up in a lot of places” but lived mainly in a city in the

Southwest. Additionally, he spent time in other states that were located in the North, and on both east and west coasts. During the moves he mainly lived with “just family. I have a lot family. I've moved around with a lot of family and lived with all of them.” He completed high school in a large urban city. In his spare time Billy works at a fast food chain and enjoys playing sports. He was diagnosed with the combined type of ADHD in “first or second grade.” He describes his ADHD symptoms as “extra energized.” He said he does not let his ADHD diagnosis bother him, “I tried to, to say, okay. This is what I have. Let's just deal with it.”

Sarah. An African American female, Sarah is 20 years old and in her third year at the university. She is a pre-physics major with a minor in music education. She grew up in a northern suburb of a large city in the Southwest with her mother, is the eldest of two children, and considers herself to be very family oriented which is “definitely a big part of my family’s life.” In her spare time, she works, sings, and writes music as a hobby. She was diagnosed with the hyperactive form of ADHD in second grade. Describing her ADHD symptoms, she acknowledged, “I always have to be moving. Like, I can't just sit down in one place for a long amount of time.” Sarah recounts her personal feelings about her ADHD diagnosis:

I would say it's something that I'm okay with only because I was able to find out what I needed to do to help me. It was kind of an obstacle at first, but I feel that once I understood what it was, then I never had a problem with it.

Jared. A 19-year-old African American male, Jared is in his second year at the university studying kinesiology. He has always enjoyed playing football, “I've been playing football for the majority of my life, since I was about, four years old.” He likes

playing sports in general, noting “I used to play baseball and basketball, you know usual sports.” Jared also plays football for the university and is studying health and fitness management. He is an only child who grew up with his mother who supported him throughout his educational career. They lived in a suburb of a large urban city and he attended several schools. When he is not playing football or in class he considers himself to be a laid-back person who likes to “listen to music and play video games.” He was diagnosed with the inattentive form of ADHD in elementary school. In regard to his feelings about his ADHD diagnosis, Jared revealed, “I feel like it helped me and, you know, it was sort of better, really” because it helped create a good work ethic.”

Brint. A 19-year-old White male, Brint is a second year student studying mechanical engineering at the university. He grew up in a suburb of a large city with both parents and has an older brother. He attended a medium-sized high school and considers himself to be a big “car guy” who “wanted to go into automotive before aerospace,” both of which are very interesting to him. He said he would work in either industry when he graduates depending on job availability. Brint likes imports and considers himself a “big Mazda guy” since he currently drives a Mazda Miata. Brint was tested and diagnosed with ADHD in the fourth grade. When asked about his specific diagnosis, he disclosed, “I don't think it was ever officially told. I would probably say inattentive.” He “would always get started and then kind of distracted on my phone, or, you know, watching TV.” Describing his personal feelings of ADHD, Brint recalled “I didn't mind much” and that in 4th grade, when he was diagnosed, he “didn't really know what was going on.”

Data Analysis and Findings

Data analysis was conducted using a two-step process. The study's conceptual framework guided the initial round of coding: (1) treatment options, (2) peer interactions and relationships, (3) teacher knowledge and support, (4) family knowledge and support, and (5) comorbidity. Once completed, a second round of coding identified categories that I grouped into themes not specifically addressed by the conceptual framework. The 19 themes which emerged were: (1) the decision, (2) factors influencing the decision, (3) exercise as an alternative to medication, (4) personal regrets, (5) relationship with parents, (6) relationship with peers, (7) teacher relationship and practices, (8) support provided in school, (9) school regrets, (10) parent support, (11) overall school experiences, (12) harder in secondary, (13) acceptance of ADHD in secondary, (14) benefits of ADHD, (15) the road to college, (16) race/ethnicity, (17) male and female, (18) socioeconomic status, and (19) cultural background. They are discussed individually by thematic category in the sections that follow. Quotations from the participants were used to expand each theme to provide meaning and context for the findings.

Research Question #1: Decisions Regarding the Use of Medication

Chen, Seipp, and Johnstone (2008) reported parents differ in their beliefs on how to reduce ADHD symptoms, or otherwise support their children with an ADHD diagnosis. More specifically, research indicates that 69% of children (Visser et al., 2014) who are diagnosed with ADHD take stimulant medications as a primary way to mitigate their symptoms, while 31% avoid such medications (CDC, 2013). Academic pressures also effect the diagnosis of ADHD and subsequent usage of ADHD medication (Bokhari

& Schneider, 2011). If medication is chosen, recent research suggests that ADHD medication can reduce substance abuse disorders (Zulauf, Aprich, Safren, & Wilens, 2014). In order to answer this research question, data was collected on the following themes: “The decision” (who made the treatment decision and how it was made; which treatment was chosen; how ADHD was diagnosed in each participant; and how attitudes about the decision changed over time); and “Factors influencing the decision”.

The decision. Common themes were evident in how the ADHD treatment decision was made. Unsurprisingly, given the age of diagnosis for all participants (second to fourth grade), seven out of eight participants identified their parents as the decision makers who chose not to approve ADHD medication, while one, Casey, was given the decision because his parents didn’t know if he could swallow the medication due to swollen adenoids. Ultimately, he chose to decline.

Half of these participants described a diagnostic experience that began with communication from their teachers. Jared reflected, “like one of those parent teacher conferences. And she just mentioned a few things to my mother, and she [mother] decided to take me to the doctor. The doctor told her that I might have ADHD”. Natalie remembered a similar experience. After speaking with her second-grade teacher, her parents “went to go to seek advice from a doctor” and inquired about what ADHD was. It is important to note that in all cases, participants were offered medication by their respective pediatricians, but all families declined for one of the following reasons: the negative experiences of acquaintances; the fact that the participant was doing well in school and parents didn’t see the need for it; or, in one case, because the student felt unable to swallow the medication.

Over time, for some participants, medication was reconsidered due to the rigors of secondary school. Betty explained that when she got to high school the higher stakes posed by standardized testing forced her to begin thinking about medication as an option. She explained her mental battle with this option:

Yeah, not taking it was very difficult for me because I was so stressed out about getting into college and worrying about what I'm going to do with the rest of my life that I just couldn't focus on one thing or another, so that part [was] my feelings. I was very confused on whether to take it and my parents were like no, that's not the right thing, like there's other ways to help you in this situation, so they would allow me organizers. They would tell me okay, you need to do meditation and you need to work out, exercise, and just like, let your mind cool off and just try not to stress out as much, so that's what they did for me.

Brint also indicated that the rigors of secondary school inspired a reconsideration of ADHD medication. He found that when he got into high school the “homework and lectures, like if I ever got distracted, it was really frustrating” and that he wanted to “fix this problem” by potentially taking medication. All, interestingly enough, chose not to take medication because they wanted to overcome these obstacles naturally as a learning experience to improve their lives for the future.

Factors influencing the decision. Participants indicated several factors that influenced their parents’ decision to not medicate. Half mentioned positive school performance despite the diagnosis, while others indicated concerns over adverse effects. Some also cited the belief that their condition was not severe enough to warrant

medication, while a few stated that they had comorbid conditions that impacted the decision.

School performance. Half of the participants cited their academic success as the main factor in declining medication. In fact, the majority of participants indicated that they did well in school and that struggles, particularly in elementary, were few and far-between. For example, Brint, an A/B student, indicated that “I was already doing decently well in school, and they [his parents] just didn't really see a point of it [medication].” He reported that his parents told him he just needed to learn how to “focus on learning how to study, learning how to take tests.” Billy indicated that he was doing very well academically at the time of this study and that in the 4th grade he was reading at a high school level. After making the initial decision to refuse medication, Billy’s mother would revisit the choice with “follow-up visits every so often with the neurologist for three or four years and so we kind of just tried without medication.” A few participants, however, noted some level of early academic concern leading to the ADHD diagnosis. Casey reported that he began falling behind in the 4th grade and his teacher initially recommended a screening citing “she had a kid with ADHD, and she said she saw something similar in me that she saw in him and maybe there might be a link there.” For other participants who did not struggle academically the presumption of an ADHD diagnosis from the teacher came mainly from behavioral factors like a short attention span, excessive movement, or getting into trouble due to lack of impulse control. Betty, who performed well academically, cited short attention span as a reason for why she received her diagnosis by stating, “I get distracted if I hear someone clicking their pen or

something, like I said in the last interview, that it bothers me and it'll stick in my brain and I can't get it out of my brain.”

Concerns about adverse effects. Two participants noted negative experiences of relatives and acquaintances as a reason their parents chose to decline ADHD medication. For example, Tammy’s older sister’s negative experiences with taking ADHD medication encouraged her parents to attempt alternative methods. Specifically, she mentioned that her parents saw that her sister used the medication just to “get by in school and that how heavily she had to become dependent on it [medication] and that's why they kind of chose to go down that route” and that Tammy “can probably do this without having to take pills.” This concern about the possibility of addiction factored into the experiences of an additional two participants, both of whom indicated that close family members had substance abuse problems which led their parents to seek alternatives to medication. For instance, Betty explained, “this is probably very personal” because “he [father] was addicted to narcotics and drugs, so she [mother] did not want me to be put in that situation.” When questioned more about her father’s addiction Betty shared:

My dad has ADHD, so he he's the one that, he took medicine when he was younger and he saw the effects of it and how it affected him and he did not like that, and did not want me to have to go through that because he got very addicted to it, and he did not want me to go through the same thing that he went through.

Betty said her mother was also concerned that by taking ADHD medication “I could've been addicted to them. And she just didn't want that in the situation at all.” When given her personal feelings about this decision, she agreed with her parent’s decision and

asserted her opinion that the negative effects of such medication outweighed the positive benefits.

Severity of condition. Two participants suggested their ADHD symptoms, in their parents' eyes, were not severe enough to warrant ADHD medication. After receiving the ADHD diagnosis, Sarah's family wanted to see if they could "continue without it." Upon reflection after her high school graduation, she found that she did "perfectly fine" without medication. Natalie's parents also made the decision not to take ADHD medication to mitigate symptoms because, "it was like, it's not that serious type of deal." Adding insight to her parents' decision to decline ADHD medication, Natalie revealed, "I was just like, I mean, if this is how I am, this is how I am. Like there's no reason to put a whole foreign substance in my body." Further, she described thinking that since she has "gotten this far" there was "no point in introducing a medical prescription" and that she "really didn't need to take it because it [ADHD] wasn't at a very severe level".

Comorbidity. First (2005) found that it is typical for children diagnosed with ADHD to have comorbid disorders, often other learning disabilities or psychological diagnoses. However, six out of eight participants reported no instances of comorbidity and stated therefore, that this was not a factor in the treatment decision. Most respondents, like Casey, indicated "No, not at the time" and "otherwise, I was healthy" and Sarah, who stated "no, that [ADHD] was the only thing." Others said they were uncertain whether they did or did not have a secondary diagnosis. Betty, for example, explained she did not have any other mental disorders, "no, not that my parents told me." Similarly, Brint, explained there were no other mental disorders present, "not that I know

of, no.” Only two participants indicated a comorbid condition of anxiety or mood disorder. Billy stated he has “had tics...ever since I was little” and was told “they were related to his OCD (obsessive compulsive disorder)”. Jared, on the other hand, explained he “had anxiety,” and that at times he was “aggressive, you know, mood swings here and there.” Neither participant indicated that these comorbid conditions negatively affected their academic performance.

In this study, due to the young age of participants, their parents were the decision makers when it came to obtaining the diagnosis and deciding on treatment for their ADHD symptoms. All participants noted their parents, being united in the decision when choosing methods to mitigate ADHD symptoms, chose to decline ADHD medication for a myriad of reasons, but most commonly because their child was already doing well in school. Later on in school, however, a few of the participants mentioned revisiting using medication as an option but eventually declining it because they wanted to work through their difficulties another way. Specifically, they had learned more about their form of ADHD and how to work through the symptoms. The reasons for parents declining ADHD medications included the following: the participants’ academic success despite the diagnosis, the negative medication experiences of others, and the perception that the participants’ conditions were not severe enough to warrant medication usage. Emergent themes related to this research question were the decisions not to medicate and factors influencing those decisions.

Research Question #2: Controlling ADHD Symptoms During School Years

Aerobic exercise is one non-pharmaceutical option for reducing ADHD symptoms in children diagnosed with ADHD (Den Heijer et al., 2017). Themes related

to this research question are: “Exercise as an alternative to ADHD medication” (whether aerobic exercise chosen as an alternative to medication and the various factors surrounding that choice.), and “Regrets” regarding personal or school decisions that may have negatively impacted their academic outcomes.

Exercise as as a means to control ADHD symptoms. Six of the participants discovered that rigorous exercise supported focus/refocusing, was a healthy release from stress, provided structured social opportunities, and served as a motivational factor for completing school work. Two participants did not mention exercise as a way to mitigate their ADHD symptoms, relying instead on either parental or in school organizational support which will be discussed in later sections.

Improved focus. Casey, for example, came to rely on a regular and rigorous running routine:

When I woke up, I always felt, you know, groggy and everything because you're waking up at six AM. And I never drank coffee. But once I'd run, I felt like I had a clear head. Like, you know, got my blood going and I could think clearly. And then I'd stay awake. I wouldn't be so lethargic and sleepy and, and you know, mindless during class. So, I don't know if there's any, any scientific data that supports that, but I felt like waking up and exercising before class did help [me] focus during the day.

Billy fell into an after school exercise routine that helped improve his focus, “If I was trying to decompress after school, exercise, sports, those definitely helped me. Okay, now I can focus and do homework.”

Healthy outlet for decompression. Rather than as a regular routine, Natalie came to use physical activity on an as-needed basis to decompress when she needed to walk away from her work and refocus. For instance, she described a situation in which she was frustrated by her inability to complete a puzzle: “I would go play outside” and “I’ll be thinking about the puzzle the whole time. And then I would come back, and I would do it [the puzzle] again and get it right. And then I’ll be happy finally.” This interest in physical activity grew to be an integral part of her life, “[I] ran track, you know, I swam. So, it was always just a matter of just staying active for me. Like just trying to balance it with school and sports.”

Structured social opportunities. In addition to aiding in focusing on instruction, Jared found that exercise helped him socialize with others, “I think it’s the people and the exercise because, a lot of the sports, you have to have a specific task for what you want to do” and that exercise particularly “helps you stay on task and helps you more socially.” Billy, self-described as talkative, recalled “I’ve been playing football all throughout middle and high school. I played every sport except tennis, basically.” Billy also found that team sports offered a great way to socialize without ADHD getting in the way: “I loved talking, so again, there was that communication factor. I was quarterback in football, so I kind of had to talk all the time.”

Motivational factors. Separate and distinct from the physical aspect of exercise, three of the eight participants mentioned that participating in team sports became a source of motivation to perform well in school so they would have more successful educational trajectories. Natalie explained:

It [sports] was always just really having something to do outside of school that motivated me to do good in school. Like you know how when to play on a team your grades have to be good, you know what I'm saying? Middle school through high school I was always playing basketball. Even when I was small, I was playing basketball.

Natalie added that she wanted to “take care of that [school work] so I can do well in sports.” Sarah reported she loved playing sports and she had to “pass my classes and get good grades so I could continue playing sports. So that was a big factor for me.” It was “another reason for me to want to find ways to be engaged to get the grades that I needed.”

Personal Regrets. When reflecting upon their public school experiences, the participants reported having regrets, specifically with regard to personal decisions they wish they could go back and change. Desires about personal changes included wishing they had known other strategies for managing problematic behaviors.

Personal changes. Half of the participants stated they would have liked to have more self-control over their behavior while in school. In contrast the other half mentioned school-related factors that will be discussed further in the third research question. Natalie explained she would like to go back to second grade to have more control over herself. In class, she was “always hitting someone” and then pondering it, thinking to herself “you know how you do something bad and then you think about it afterwards and be like why, why?” Overall, however, she shared “Everything else worked out perfect, like it worked out fine. So, I mean I wouldn't really change anything right now.” Betty mentioned she learned to “print off the PowerPoint” for class and to

“sit in front of the class” to support focusing, so possibly knowing those strategies earlier might have simplified the trial and error process of figuring out what learning strategies worked for her.

Alternatives to medication were reported to be exercise related, specifically aerobic exercise that included rigorous activity sports (e.g., running). Participants returned to the topic of exercise as a treatment option often; such exercise thus seemed to play a significant role in their symptom management in particular, and their lives in general. Emergent themes most significant to this research question were use of aerobic exercise as a way to control their ADHD symptoms and regrets.

Research Question #3: Relationships with Parents, Peers, and Educators

Children with ADHD tend to have strained relationships with peers and adults due to the inability to control their behaviors (Barkley, 2014; DuPaul & Stoner, 2003). Furthermore, parents may lack knowledge about ADHD, leading to impaired understanding around the benefits and pitfalls of different treatment options (Leslie et al. (2007). Additionally, Singh et al. (2010b) reported that strained relationships between students diagnosed with ADHD and their peers and that students with ADHD can feel stigmatized because they are different from the norm (Wilson, 2013). Finally, teachers report higher levels of stressful relationships with students diagnosed with ADHD compared to those without ADHD (Greene, Beszterczey, Katzenstein, Park, & Goring, 2002). Therefore, it was vital to this study that participants’ social relationships be examined. More specifically, participants’ relationships with parents, peers, and educators were explored to understand how they specifically effected each participant’s school experiences and outcomes. Parent-child relationship themes revealed during this

process involved the supportive and empathic relationships participants had with their parents. With regard to peer relationships, the themes revealed included: having few close friends, and friends' level of acceptance of ADHD. Lastly, relationships with educators were explored and themes revealed included teacher-student connections, being treated like a "normal" child, the quality of teaching instruction, and negative teacher interactions.

Relationships with parents. The majority of participants revealed that they were close with their parents and that, throughout the process of getting diagnosed and throughout their educational career, they were understanding, provided motivation to them, served as an advocate, or had a trusting relationship. Additionally, for a few, their parents had empathy for them, citing their personal or work experiences as reason why they felt this way.

Supportive parent. Six participants' parents provided a supporting type of relationship, by demonstrating trust that the participants could handle the struggles surrounding ADHD on their own, or by providing motivational support throughout their school years. According to Brint, his parents, knowing that he was already succeeding in school, trusted that he had the ability to manage his ADHD symptoms without medication. He mentioned that "I was doing decently well in school, so they weren't pressured [to give medication]." They reportedly encouraged Brint to "learn how to study, learning how to take tests instead of, like, 'okay, let the medication take care of it' kinda thing." Casey classified his parent relationship as motivational because they "were always on top of me with any assignments" and that "they would motivate me to, to work on those assignments, complete them, and, and, and keep me going," actions which, he

believes were instrumental in his efforts to be accepted into and succeed in Advanced Placement (AP) courses.

Parent empathy. Two other participants cited that their parent-child relationship was marked by empathy largely due to the parents' personal experiences with, and understanding of, ADHD. Betty identified the source of her parents' first-hand experience with ADHD as the source of their empathy. She said her parents were supportive "because my parents have it too, so they understand what I'd be going through. And it definitely helped having them, because nobody else knew what was going on, except for all of us." Sarah described her mother as a "helping type of person" that "it just kind of came naturally for her to want to help me succeed." With her initial diagnosis, her mother was "supportive throughout the whole process because...it was like she understood what I was going through." She felt her mother was empathic to her condition because she was an assistant principal and knew how to adequately help her based on her work experiences with other ADHD children.

Relationships with peers. Participants' responses to this question were placed into two categorical themes: having few close friends, and peer acceptance of their diagnosis.

Few close friends. Most participants reported only telling their closest friends about their ADHD and not telling others for fear of being viewed differently. This may explain why half the participants indicated having only a small number of close friends, roughly three that they still talk to today. For instance, Brint explained "I did have a few tight friends, but I wasn't like a super popular kid in school." Casey admitted only a few people knew about his ADHD diagnosis. The friends who knew were just a few and they

“had family members that were diagnosed, so they understood.” Sarah also only told her close friends about her ADHD diagnosis and said the only person who knew “was my best friend.” She also indicated that she only told her because she trusted her and didn’t think others would treat her as a “normal” person if they found out. Describing her friendships, she recalled:

In elementary I had two best friends. I’ve been good with people since I was a kid. But I’ve always like kept a few best friends, not just anybody around me. In elementary I had one guy friend named Dane, and then one girl friend named Taylor.

Jared “got along with friends” well; he did not “have a lot of friends, but I have a certain number of close friends.” He also confirmed his close friends are still his “close friends today.”

Peer acceptance of ADHD. Six out of eight participants asserted that once they told their friends they had ADHD, it did not affect their relationships. Some mentioned that they had been friends for a long time and that the diagnosis didn’t affect their friendship in a negative way. Others noted their friends had family members with ADHD, which is why the participants thought their friends accepted their diagnosis. Only two mentioned keeping it from their friends.

Most participants explained that their friends treated them the same because they had been friends for a long time and accepted them for who they were. Sarah explained that her friends knowing she had ADHD “didn’t change anything” because they had been friends for a long time prior and a very good relationship. Jared indicated that once his friends found out about his ADHD diagnosis “they treated me just the same. They never

treated me any different. I'm pretty sure they didn't even know what it meant” because he told them in elementary school. Billy also highlighted that his ADHD diagnosis was “never a negative connotation” and that his friends explained, “that guy's extra energized and he can't focus at all and he's always got to be playing with something.” When questioned if Natalie’s friends knew about her ADHD diagnosis, she affirmed by acknowledging that, “They [friends] knew. Even though we were small, you know, they knew after I found out...I just told them because it was okay, whatever, you know.” She recalled her friends figured she had it and that it was “like a joke type of thing.” Natalie said since she and her friends were always so active that it was not a big deal.

Others mentioned that their friends had an understanding of ADHD prior to finding out, solidifying their acceptance. Casey would talk to his friend’s family members who had ADHD and “share common stories of things that would help” which would help him work with his own ADHD symptoms. A friend comforted him saying, “People have it. Some people don't. It's, it's like freckles on your skin, you know?” Nonetheless, his friends’ acceptance of his ADHD did not change his personal mindset about his ADHD in that he still felt stigmatized by the label.

Kept secret. Two participants kept their ADHD diagnosis secret from friends for fear of not being perceived as “normal” and losing their friendships. Tammy indicated she did not talk to her friends much about the ADHD diagnosis, “there really wasn’t a point” and, “I didn't really talk to them about that...most of them probably didn't know what it was.” She said once her friends found about her diagnosis in elementary school, she “felt different [from peers]” but when she got to middle school, “it was more normal. It wasn't too bad. I knew other people who had it as well, in high school...there were lots

of people had it, so it wasn't much of a difference. I didn't feel different at all." Betty shared that while she chose not to tell her friends about her diagnosis when she was in elementary school, saying, "when I was younger, they didn't really know, because I didn't really want to tell them" because she was afraid of how they would think of her and didn't want to change their relationships. This changed when she reached the secondary level: "but when I was older, junior high and high school, it wasn't really a big factor." She went on to recount her experiences with sharing her diagnosis with her high school peers: "Yeah, I have ADHD, and they were like, 'Oh, okay, cool.' Like it, it doesn't bother me." She also noted that in high school, "They were very supportive and understanding. And they knew that it didn't change who I was."

Teacher relationships and practices. Most participants noted that a strong teacher connection led to positive school experiences and outcomes mainly due to specific teaching styles and being treated as "normal". They all also mentioned, while limited, specific negative experiences with educators that were specifically connected to their ADHD symptoms.

Teacher connection. Seven out of eight participants mentioned positive connections with their teachers as a factor involved in their academic success. However, one participant, Brint, reported his teachers made him feel stigmatized because of the accommodations for his ADHD. The majority of these participants reported that they had particular teachers or coaches who, upon learning of their ADHD, would go the extra mile to mentor them. Often these mentor relationships were seen as helping the participants learn more self-control. When questioned about the relationship aspect and specifics of what his teachers did for him, Jared stressed "so just the personal connection

we had. You know, that made me comfortable, and slow down and understand different things.” One teacher allowed him to listen to music while working in class because she trusted him to stay focused and complete his work. He stated, “Within myself, I think, I learned that like ... I listen to music a lot, so like I think a certain type of music I would have, that would help me focus on different activities I would do.” Jared reported that this type of relationship was a contributing factor to his success in that class.

Tammy also remembered patience and strong connections from some teachers who would encourage her with, “Hey, it's okay, you know, a lot of people have it. It just takes you guys a little longer sometimes to get things.” In Tammy’s experience, those positive teacher interactions have led to relationships that endure today and were the reason why she enjoyed school so much.

Several participants specifically mentioned how their coaches guided them into sports both as a healthy energy outlet and positive motivation. Natalie explained her coaches’ approach:

It was always just positive reinforcement from them, like “oh, we recognize Natalie,” and stuff like that. And “let's just motivate her to stay active, like exert that energy into something positive like sports”. And that's why I was always on the basketball team and stuff like that, and track and stuff like that.

Natalie felt she and the coach “had a bond. Like she understood me, I understood her, because she knew somebody else that had it [ADHD].” The bond helped Natalie to mature.

Billy stated that the relationship with his coaches meant that he had someone to listen to when he needed to vent or needed to just talk to someone, and that relationship

helped him “develop that self-control.” When questioned about what exactly developed the self-control, he noted it was the personal connection with his coaches and the structures they taught him. Jared also found great value in “the personal connection” he shared with his teachers. He stated this connection, “made me comfortable, and slow down and understand different things.” He described one teacher in particular who would play symphonic music in class and shared that listening to the music “would help me focus on different activities I would do.”

Being treated as “normal” by teachers emerged as a significant theme: seven out of eight participants recalled not wanting attention called to their ADHD symptoms. Only one, Billy, reported that he didn’t mind being treated differently because he “was able to stand when necessary and [play] fidget with toys, which helped me pay more attention to class lessons.” In some sense, this was an acceptance by the teachers of the students’ whole selves. In contrast to negative experiences with her second-grade teacher, Natalie placed a high value on being treated as “normal” in the rest of her education: “like it was no abnormality, it was just like, okay well this is Natalie.” Jared also appreciated that his teachers “wouldn’t treat me, you know, sort of special, you know to where like other kids could tell that they were like treating me differently...they treated me the same because I was still a good kid to be around, so I was just like every other kid so they treated me the same.” Sarah reported that she “wanted to be treated normal” but that she knew she needed the classroom accommodations and stated she “was not ashamed to ask for help or to take my test in another room with less people if I needed to.” On the contrary, Brint also wanted to be treated as “normal”, and “didn’t appreciate the accommodations because I wanted to prove that I was independent of the medication. I did not like to feel

like I was a special case.” This sentiment highlighted Brint’s ability to build self-efficacy which supported his positive school experiences and outcomes.

Teaching instruction. Few participants specifically mentioned teachers’ teaching instruction though some specific interesting examples did come to light. Casey found that being exposed to “real-life examples” made the content easier to comprehend. When prompted, he recalled a chemistry teacher who knew “how to work so well with students” in part because she “knew what she was doing” which in turn supported “students who needed a different approach or something.” Conversely, when asked what made other classes harder, he recalled a calculus teacher who just “talked to the class” rather than using a variety of teaching modalities and was not “available outside of class.”

Tammy mentioned there were times where class got hard and admitted to taking one class three times because the teachers “couldn’t explain to me how to do certain things.” Specifically, Tammy also recalled a teacher teaching to the whole class and not taking time to explain things differently so she could understand. She eventually got the right teacher and made a 96 in the class because that teacher could “work with me and help me.” When asked what the “right” teacher did to positively support her she mentioned:

He had tutoring sessions, like, every day after school; so that really helped. Before and after school tutoring sessions so that helped a lot. [Within class] we worked in groups sometimes and if we didn’t understand something, he’d come to us individually. No problem answering questions. A really positive guy, so that really helped.

Negative interactions. While the majority of participants indicated overall positive experiences within school, most participants could also recall specific negative interactions with one or two teachers. Participants mentioned that the obvious use of accommodations led to feeling stigmatized, that their hyperactivity led to negative classroom interactions with teachers and that some of the participants noted a time when a teacher sometimes responded to them with biases. Casey reported feeling stigmatized when a teacher forced him to sit in front of the classroom. Brint also stressed that the use of accommodations made him feel stigmatized and less than normal. He felt that his ADHD was less severe than others and that he didn't need accommodations that his parents told his teachers were needed. He felt that they "kinda really overreacted and I didn't want to be treated differently, really." Specifically, his teachers would make sure he had more time on tests and that he was made to sit in front of the class. By doing this he felt alienated and "almost preferred teachers who didn't, uh, do anything."

When recalling his interactions with teachers, Billy estimated that "there were 90% just awesome teachers that were totally understanding." When diving deeper into the interactions with the 10% he had negative interactions with, he pointed out some would respond "shut up and sit down." And, when they first met him and noticed his hyperactivity, he felt they would think to themselves "okay, well he's going to be a problem." He indicated that his energy caused him to get in trouble from time to time, earning trips to the principal's office on occasion, but more frequently classroom redirection. In fact, when recalling his efforts to develop self-control, Billy remembered being motivated by teachers' negative reactions, "I didn't want to make anybody mad, and I didn't want to make somebody else's job harder."

Relationship with parents, educators, and peers were found to be a significant factor in the school success and outcomes for each participant. Most participants indicated that their parents built close relationships with them by providing motivational support or had empathy for their condition. Close relationships with peers, while not as significant as parental and educator relationships, were found to provide an additional layer of positive reassurance for most of the participants. Participants also stressed the close connection of their educators as a reason why their educational experiences were mostly positive. Lastly, when educators built relationships with participants they contributed to positive educational experiences and outcomes like improved academic performance or enhanced organizational skills.

Research Question #4: Support Provided in School and Home

This section describes the level and types of support participants received in order to be successful with their school pursuits. The literature highlighted the need for educators to provide classroom interventions and accommodations for students diagnosed with ADHD to support their positive school outcomes (Doggett, 2004). This research mirrored the findings in this section. In addition, Firmin and Phillips (2009) recommended structured routines as a method parents can use to provide support at home. This finding was also affirmed by this study. One theme discovered is support provided in school (physical space, tutoring, organizational skills, and the stigmatization of additional support). Parental support was another identified theme addressed (communication with teachers, parental organization, and parent tutoring). Finally, school regrets, specifically regarding support mechanisms and mentorships, are discussed.

Support provided in school. At school, participants reported that specific support structures were offered to them that were a contributing factor to their positive school experiences and outcomes. Support in the form of classroom accommodations, tutoring, and organization were themes that emerged.

Physical space. Classroom accommodations may be used to provide disabled students equal access to the educational opportunities enjoyed by their non-disabled peers, as a means of “leveling the playing field”. Five out of eight participants indicated they sat at the front of the classroom because it would “rid [them] of all the distractions [so they could] really focus and [take] good notes in class.” The impetus for this support mechanism sometimes came from the parent and sometimes from the teacher, and it was met with varying degrees of appreciation from the students. For instance, Brint recalled, “in one class, they wanted me to sit towards the front more, but I wasn't a big fan of that, I like being in the back for some reason. I still do.” Betty also remembered preferring seats in the back, but in hindsight acknowledges that sitting in the front did help her “pay attention so that I can follow along, rather than getting distracted.” Sarah similarly preferred to sit where she wanted, but eventually understood that sitting in the front of class supported her learning. She acknowledged that at first, “Like it's up to you to make the grades that you want to make. So, I used to always want to be the kid that could sit in the back and talk with their friends.” But, in order to “make the grade you want” she reported I had to “make myself sit in the front.” In front of the class, “they [teachers] would make sure I was engaged in class.” This type of preferential seating for these five participants, while they didn't always want to utilize them, showed to be a positive support mechanism to support mitigating their ADHD symptoms.

While four remained in the classroom to work at all times, the other four participants indicated they would occasionally be offered a separate classroom to provide a quiet space so they could focus on their work. Sarah described being taken “to another teacher’s room so I could like have a quiet room to take my test.” Betty also reported taking exams in a separate room to minimize distractions, “I would get easily distracted by literally the clicking of a pen,” or “someone shaking their leg, I know it’s not something you should get distracted by. But it distracted me, more than other people.” Being provided an additional space to focus on their school work afforded them the ability to perform better academically.

Tutoring. Five out of eight participants indicated that various types of tutoring, whether it was in an after school tutoring session with the teacher, with a group during peer tutoring, or getting individualized support during the class period, directly enhanced their understanding and learning. Brint identified the many ways tutoring helped:

hearing something twice, I guess. So, same thing as sitting up front. Less, you know, peripheral, outside things, stimulating you. Just additional resources, I guess, really... really, figuring out what topics needed to be focused on and the one-on-one interaction helped a lot.

Sarah reportedly took advantage of teachers’ regular tutoring times. “We [students] worked in groups sometimes if we [didn’t] understand something, he’d [teacher] come to us individually if we didn’t get anything”. Jared also found that tutoring supported his success in high school through forging closer relationships with his teachers, “I think the personal connection we had made me comfortable...slow[ing] down and understand[ing] different things.” Natalie described her high school psychology teacher as having “a lot

of knowledge on mental disorders and you know, brain functions and things like that.” She went on to explain that while other teachers were supportive, the psychology teacher “gave me knowledge not about just ADHD, but about other mental disorders.” By giving Natalie knowledge of ADHD, it helped her learn more about herself, better understand her ADHD tendencies, and eventually learn to mitigate her symptoms to contribute to positive educational outcomes.

Although two participants described concerns about the stigmatization of tutoring, they ultimately saw the value in receiving it. Brint, who described many positive outcomes from his tutoring experience, initially described apprehension, “I didn't want to go because I didn't want to be the kid that had to go to tutoring, you know?” After a while, he eventually saw the benefits: “But then after I went, and I saw that I needed it and was more than happy to go and get that extra help.” Although the tutoring was the catalyst to providing support for the participants, it was the individual strategies used that made them successful to each participant. These strategies included: hearing concepts repeatedly, receiving one-on-one instruction, reducing distractions to increase focus, receiving additional resources for learning, identifying topics to focus on, completing work in a group setting, developing closer relationships with teachers, achieving increased comfort with the learning environment, and receiving a slower instructional pace.

Organizational tools. Instead of tutoring, the other three participants mentioned being provided with organizational support with planners or journals. Casey indicated that his teachers showed him how to use planners, which carried over into his every day routine. Initially, he mentioned that his teachers:

were always on top of me with any assignments every day...I had to plan out everything that we talked about through the day. So, then I learned during the day to, you know, write almost like a journal of everything that had happened that day and, and assignments and, and things that had to be done.

Natalie also shared that her teachers showed her how to keep organized in school by writing everything in a personal journal. She explained that she writes “it[assignment] down, and I complete it as soon as possible. And that just always helps me like to stay on top of my things and stuff like that.”

School Regrets. Participants also reported having regrets, with regard to school decisions they wish they could go back and change. Desires about school changes involved wishing better support systems, including mentorships, had been provided.

School changes. Half of participants mentioned practices like mentorship they wish the school had provided for them. Casey suggested partnering with a mentor for advice and guidance through all stages of school would have been helpful:

I would have probably had an older mentor if I could change something...have somebody maybe in high school or a couple grades above that was in the same position I was, you know, behind my back saying, look, you just got to get into these habits and once they're habits, you know, it's nothing.

He went on to explain a mentor can “show you the ropes” and give “tips.” Someone who is “a successful person,” with “similar hurdles that they've crossed that I'm now crossing.” Like Casey, Sarah wished she had someone who could have shown her the best path forward. She also believed that if she were a mentor, she would “make sure

that they know that they would have somebody to talk to” and to help them “get through the school year.”

Parental support. Parents provided a myriad of support systems within the lives of each participant. Within parental assistance, themes revealed were: communication with teachers, parental organization, and parental tutoring.

Communication with teachers. Six out of eight participants remembered their parents communicating often with their teachers, both about their diagnoses and to ensure classroom accommodations were being followed. The other two parental units did not report their ADHD to the participant’s teachers. Billy’s mother in particular kept in close communication with his teachers concerning the she high academic expectations she had for Billy, expressing often ““oh, you're going to get good grades.”” She wanted to be sure that his teachers understood that he had “special rules” to support his highly distractible nature. Sarah’s mother relied on her own expertise as an assistant principal when communicating with her teachers and being clear about the importance of all her accommodations being honored. Other participants’ parents simply communicated with teachers as necessary, preferring to only discuss accommodations when a specific need arose in a class. Brint recalled his parents honoring his preference to sit in the back of classrooms over his front of the classroom accommodation because he “didn’t like being in attention” and that he felt he “did better in the back for some reason.” He also remembered that they didn’t insist he use graph paper for writing, a formally identified support for his poor handwriting, because he “had terrible handwriting, so, that's probably why.”

Parental organization. Five of the participants indicated they used specific organizational tools learned from their parents to help them stay focused and keep their assignments; participants believe using these tools contributed to their academic success. Casey's experience was typical of this group of participants: "So they were always on top of me with any assignments, and every day that I came home, I had to plan out everything that we talked about through the day." These at-home discussions were so thorough that Casey found himself keeping more of a detailed journal than a typical planner, a habit that continues to this day. Natalie, too, reported that her parents' enthusiastic oversight led to habits that survive today: "whenever I get my assignments, I have to write it down that moment." Staying organized and structured ensured she completed her assignments, though she now describes this trait as "a little obsessive-compulsive", as she has to "write it [assignments] down" immediately and "complete it as soon as possible."

Parent tutoring. The other three attributed their school success and positive school experiences to tutoring and support with homework from their parents. Sarah, whose mother was a former teacher and current assistant principal, reported that parental support on homework really helped with her eventual success in school. In fact, Sarah confided that knowing she had help waiting at home:

I didn't necessarily stop the teacher and say, 'I don't understand something;' so working with my mom, it was more one-on-one, so if I didn't understand something, she would slow down and find other ways to explain it, so that helped a lot.

In addition to being tutored at school, Betty's father also provided tutoring support at home. Her father, "an IT guy," was able to help her with difficult advanced math courses, doing so because he didn't want her to feel different from her peers. She added that since he knew what she was going through "He [father] helped me with homework and like, if I needed to study, especially with advanced math material, he would be there to quiz me or help me understand things."

Difference vs. normalcy. One theme not identified in the conceptual framework or literature review of this study was that of how parents and participants reacted and dealt with the diagnosis and their responses throughout childhood and school. The majority of participants mentioned their parents and participants both identified ADHD as making them different; participants noted that doing so was vital to their understanding of their diagnosis and to their searches for strategies that would allow them to be successful in school. Conversely, three of the participants' parents provided some level of assurance of normalcy, telling them that they were not different than other children without ADHD. Regardless of style, all parents in this study ensured successful outcomes for each participant by providing structure and routines, kept in close communication with their teachers, and being there for them either motivationally or empathically.

Acknowledging ADHD as a difference. The majority of participants described parental support in the form of acknowledging the differences and difficulties that can accompany learning for ADHD students. These parents encouraged their students to "really pay attention and put [in] more effort" (Casey). Often they supported these

exhortations with structural support designed to help them as different learners. Casey recalled:

So, they were always on top of me with any assignments. Every day that I came home, I had to plan out everything that we talked about through the day. So then, I learned during the day to write almost like a journal of everything that had happened that day and assignments and, things that had to be done. And then when I'd get home, they would motivate me to work on those assignments, complete them, and keep me going.

Not only did this structure help practically at the time, it offered Casey a model that he was able to replicate on his own in later years, “[I] kind of [got] in a groove and realize[d] how to work with things.” This allowed him to have more freedom and control over his life, which he liked. Sarah’s mother, a former teacher and now administrator, also acknowledged Sarah’s ADHD as a difference and was very hands-on with communicating to her teachers to ensure they supported her in school with accommodations. Her mother found ways to tell the teachers about her ADHD diagnosis so they would provide specific accommodations. She said her mother “had conversations with the teachers” to ensure she “sat in front of the class.” Sarah mentioned a specific time in 6th grade when the school work became more rigorous, “But once my mom and I sat down and kind of figured out what I needed to do, then that definitely helped me out a lot.” Tammy’s parents, being aware of the struggles of her ADHD-diagnosed sister, also acknowledged ADHD as a difference for her because “she [sister] didn’t have a very good experience in school”. When Tammy got to middle school and the schoolwork became more challenging, her mother “switched her work schedule to help me with my

work.” Her acceptance of ADHD in secondary also was supported not only by her parents but by her peers because many of them were coming out as having it which made it less stigmatizing for her.

Assurance of normalcy. Natalie’s parents assured her, “you’re perfectly normal, just like you’re more, you just like to stay active so you just, you’re more hyperactive, you like to do more things.” Her parents continually reminded her that having ADHD should not make her feel different or any less apt to achieve than children without ADHD. She affirmed her parents provided her reassurance because “when you’re a kid you think because I’m like that is there something wrong with you.” This overall attitude continually supported Natalie directly, but also indirectly as it became the family culture and was thus reinforced by her entire family. Betty described reacting to her initial diagnosis by feeling “different” and that her parents provided support at home “because they didn’t want me to feel like I was different than anyone and that there was something wrong with me.” This eventually led to her accepting the diagnosis later on in elementary school. Jared’s parents wanted him to be treated like a normal child and encouraged him to play in sports where he could feel more like the other children. He mentioned they would “keep me socially active” by exposing him to various types of school programs but eventually his parents noted “team sports, team sports really helped me a lot, so I would keep him in team sports.” Exposure to team sports taught him to “stay on task”; he also stated that these activities “help[ed] socially.” This type of activity solidified his parent’s belief that he was normal and made Jared also believe, because it helped him find a group of friends he could fit in with socially.

The majority of participants parents indicated that their view that an ADHD diagnosis represented a “difference” and provided structure within the home in order to support their positive school experiences and outcomes. Some also used their background knowledge to advocate for accommodations in the classroom and to keep in close communication with the school. Other participants’ parents attempted to help them feel “normal” and accepted by others by using a variety of measures.

The data revealed that both teachers and parents played critical roles in determining, designing, and implementing successful support strategies for students. The effectiveness of these strategies in mitigating their negative ADHD symptoms made it possible for the students to continue to avoid medications. In addition to the tutoring and other classroom accommodations, one teacher trained in psychology empowered students with ADHD by providing them with technical knowledge about the disorder. Strategies that emerged were support provided in school, school regrets, and parent support.

Research Question #5: Educational Trajectories of Participants Over Time

Children with ADHD may report their school experiences as difficult compared to their peers without ADHD (Kendall, Hatton, Beckett, & Leo, 2003). Participants within this study did report some difficulties but had an overall positive view of their experiences. Additionally, Krueger and Kendall (2011) found that children with ADHD experience school in similar, negative ways. While participants did mention similar specific negative instances in their schooling, their overall experiences were reported as positive. Within this section, reported themes were: overall school experiences, harder in

secondary, acceptance of ADHD in secondary, benefits of ADHD, and the road to college.

Overall school experiences. All eight individuals remember their elementary, middle, and high school years as constructive periods in their lives. Each participant specifically pointed out specific instances of accomplishment when explaining constructive experiences. Natalie shared that school was mostly “fun for me,” that she “was in the National Honor Society,” and that, “everybody else treated me normally.” Her friends supported her with positive reinforcement, affirming “nothing was wrong with me” and that they expected that “I would always want to be involved in something, like I’d always want to be either running or I would always want to go play basketball all the time.” Casey found that, when he put a lot of work into something, he could overcome his ADHD symptoms and be successful in Advanced Placement (AP) courses. He recalled a time when “Those classes [AP] was a couple moments where I really knew that I was going to struggle” and that he became successful in taking the exams and passing these courses, earning college credit, by taking the personal initiative and “read[ing] the textbook and then working through examples that I could find online.”

Jared said in school he was “socially awkward” and he “had a hard time focusing...a short attention span,” but that his experiences with friends were positive. He described needing to “build trust slowly” with teachers and having “to get used to different things,” but overall, he “didn’t have a huge problem” as he is a self-described “people person” who can get “along with different people.” Jared also described his success in school in athletic terms, saying he had been “playing football for majority of my life, since I was about, uh, four years old.” His athletic prowess eventually led to him

gaining a university football scholarship. Billy, although he did get in trouble for his high amount of energy, did not let it dampen his relationships with educators or peers. With teachers and students, he felt that because he talked so much, he was able to “get along with everyone really well...there is nobody I can’t get along with.” Billy also was successful in school as he “took dual credit courses in high school” in order to gain college credit and that he found that staying busy “helped not having free time, if that makes sense” in order to stay out of trouble.

Betty attributed a successful school experience to her organizational skills and explained how they led to a specific instance that led her to becoming a pre-med major in college. She mentioned:

at the end of my high school or during high school, I took dual credit and AP classes, so that already put me ahead and then my first semester, it was difficult at the beginning of the semester, but I got in like within two months, I got into a groove. I had a schedule. I knew like okay; I was going to go to the library at this time and do this and I had everything set so that it and at the end of that semester, I got a 4.0 because of the way that I organized myself and kept myself focused.

Harder in secondary. While some of the participants stated that secondary school was not harder, the majority of participants mentioned that secondary (middle and/or high) school was much harder than elementary. They attributed this change to a variety of causes: lack of interest, distractions, and the increased rigor of assignments. Brint shared that he was “quiet and did my own thing” and that elementary and middle school were easy but when he got to high school it was “pretty rough” because of classes like pre-calculus. He felt it was hard because, “[I would] open my book and I really had

no interest in calculus at that time.” Relating to his ADHD, Brint recalled he would get through a few problems and “get distracted.” He eventually passed the class, but it was “definitely rough.” Casey put it plainly, “middle school sucked.” He explained, “people were hard” and “nothing was fun.” He added, “I don’t know anyone that really enjoyed middle [school].” Casey recalled:

Work was harder and harder, and before that, I had never really had to apply myself as much. And at that age it really became obvious that I had to read everything twice and really think about it, you know, think about each word in my head, and that type of thing.

Sarah provided some insight on her struggle in middle school and how she became more successful. Once she learned how to overcome her ADHD symptoms and stay on track, school was “pretty easy for me.” It took a while, however, to learn to stay on track, and at times things did get tough. In middle school, “my grades kind of did show that I wasn’t able to sit in class and pay attention the whole time.” She explained, “[I] wanted to be that kid that could sit in the back of the class and not pay attention” and make good grades, but she learned in order to do better in school, she “had to make the personal decision at a young age” to sit in the front to stay focused. This attention to overcoming her ADHD symptoms paid off because when she got to high school, she had learned “how to keep myself focused and what I needed to do to stay on track.” This led to better grades and more positive school experiences.

In school, Tammy made friends but the coursework “began to get more challenging at the middle school level, I feel like it took me longer to get things.” In high school she had a “few bad experiences” particularly with pre-calculus. She had to take

pre-calculus three times and “went through three teachers.” Specifically, she identified the teaching methods as the problem, saying: “[it] wasn't working, they couldn't explain to me like how to do certain things” and “it just took me a while to find a teacher that could help and work with me.” With her fourth pre-calculus teacher, Tammy finally found a teacher who could work with her and she “ended up getting a 96 in the class.” She continued, “[I] knew I could eventually get it” but that “it has to be so somebody that can help me and work with me.” Billy explained that the dual credit classes motivated him to pay attention and not “get way more distracted” as he did in other less important classes. As a result, he made “A’s and B’s” in dual credit courses, while in courses that would not prevent him from graduating, like home economics, he would make a failing grade like a “28% in the course.” Looking back on this time he said he could have “definitely done better” but chose not to try because those classes didn’t count towards his GPA getting into college. He was the only participant that used this method as a coping mechanism throughout secondary school.

Acceptance of ADHD in secondary. Half of the participants noted that they became more accepting of their ADHD in secondary school mainly because, since more students in the school were ADHD identified, talking about it freely was common, making it less stigmatizing. The other half indicated their acceptance of their diagnosis earlier in life. In addition, some participants stated that they became better at coping with their form of ADHD in secondary school which in turn created more positive experiences. Initially, Casey asked himself, “why am I the way that I am?” In middle school, however, he began to reflect on his ADHD in order to become more at peace with it and learned how to work with it, to “plan out my day and stay on track, then it, then it

wasn't as much of a thing.” In his recollection, “It was more of a competition, or a struggle with me and myself than it was me with other people.” Tammy reflected on her school experiences and remembered it was during middle school when she realized her ADHD wasn't such a big problem. She explained that she did not know of anyone in elementary school who had ADHD, “it was kind of different” because “you don't really meet a lot of kids that [had] it.” In middle school, things were different. She remembered, “there were lots of people [who] had it, so it wasn't much of a difference. I didn't feel different at all. The only time I felt different was elementary.”

Natalie reflected that she accepted the ADHD diagnosis in secondary school and had to “keep my mind going. And then as I got older, I finally realized, okay I guess I have that, you know?” This acceptance or realization made her feel she was “normal” and could do the work like everyone else. Lastly, Jared explained that he was always uncomfortable with his ADHD diagnosis but eventually became more accepting because his close friends had it. He mentioned that “it took me a while to, you know, get comfortable with it [ADHD]” but that when he got to secondary, his “close friends from childhood came out that they had it and it [ADHD] and it made me more comfortable and accepting.”

Benefits of ADHD. Seven out of eight participants stated they did not allow ADHD to hinder their school performance. Several mentioned various ways that overcoming their condition and living through their school experiences with ADHD helped them develop skills and habits that support their life success in many ways. Specifically, more than half of the participants indicated an improved work ethic and perseverance as they grew through their educational experiences. A few also mentioned

learning to design their own organizing structures. For instance, once Casey began to overcome his ADHD symptoms, he “started becoming my own person and learning how to think for myself, I realized you know, it's nothing that I can't handle, and it shouldn't hold me back.” Additionally, he explained:

You still have to work harder than everybody and you still have to stay on task and stay focused. And in middle school and high school, that's always one of those things where you know, they say they got a good grade and you think in the back of your head, well, you know, that's great. But I worked harder. Why didn't I get that grade? And that sucks. But I really always tried to use that as motivation to, to figure how to do better next time.

Although initially Betty wished she didn't have ADHD, she recognized there were benefits that arose because of it. She had similar beliefs in her work ethic and organizational skills and how they aided her in overcoming her ADHD and learning to academically succeed:

So, at the end of my high school or during high school, I did dual credit and AP classes, so that already put me ahead and then my first semester, it was difficult at the beginning of the semester, but within two months I got into a groove. I had a schedule. I knew okay, I was going to the library at this time and do this and I had everything set so at the end of that semester, I got a 4.0 because of the way that I organized myself and kept myself focused.

Brint also shared his own experiences with overcoming ADHD and how they created a positive work ethic: “now I like the decision [to inform him of the ADHD diagnosis] because I kind of grew out of it almost, like, I learned to focus more.” Billy

admitted he had to work through his challenges with focusing and learning: “I’ve definitely tried to work through everything that I’ve kind of been dealing with,” and “so I’ve definitely done my best to try and say, look, this is not going to be a cop out. This isn’t going to be something that I can just say, oh, well, I’ll just write it off.”

Sarah shared that she felt like having ADHD was a positive thing because “it helps me only because it pushes me to focus more and it pushes me to, I guess go the extra mile or do the extra step in things that I need to do involving my schoolwork.”

Jared also shared that his ADHD has supported him to work through various hardships in life, “yeah, things go on in life, so I feel like I learned how to pretty much deal with, you know, things that can go good or, or bad.” Tammy, however, was the only participant who indicated, “sometimes I wish I didn’t have it” because “it’s harder sometimes for me to focus or learn things something that people can grasp in one class sitting, will take [me] all week and I have to practice outside of class, so sometimes, [it’s] pretty frustrating.”

The road to college. Participants gave some similar examples of how they eventually got to college. They noted that they took higher level courses in high school, were motivated by their parents to attend college, and that they all took the Scholastic Aptitude Test (SAT) with half having to take it more than one time.

Academic achievement. Most participants shared that they did very well in school. Only Jared was more conservative, describing his performance as “ok”. The majority also reported engaging in rigorous academic pursuits in high school including dual credit classes, National Honor Society, or Advanced Placement (AP) classes. Some described taking the advanced level courses to challenge themselves and some to prepare

for college. Casey pointed out that he was doing well enough in high school and that when he became a junior, he “began taking advanced level courses” which turned out to be hard for him at first. But according to him, he took these advanced courses “to challenge myself and keep up that expectation because I was holding myself to a higher standard. I still do, because I knew I had to work harder.”

College reinforcement. Seven of the participants noted that going to college was reinforced by their parents and that not going was “not an option.” Some participants also had very strong memories of their parents providing positive reassurance while in school to guide them through. Casey mentioned having to choose between going to college or working in the refineries where he lived. Betty also explained that “I’m definitely going to college” mainly because “my parents pushed me to go to college, like they knew that that was one of the options that I needed to take.” While this push did stress her with trying to get into college, it was a contributing factor to her graduating and becoming a pre-med student. Natalie’s parents philosophy also mirrored that of the majority of the other participants as they thought “you’re going- you’re going to college, you know, like why would you not be going to college?” Sarah was the only participant who made the decision for herself to go to college and did not specifically mention her parents making it the only option for her. She remembered in high school that she kept trying not to think about college, but eventually she “knew that that’s what I wanted to do just because I didn’t see any other route for me to take.”

SAT. Seven participants specifically discussed taking the SAT and four had to take it at least two times, which is not out of the ordinary as 54% of students who take the SAT take it more than once (Will, 2018). Unaware of this fact, most responded they had

to retake the test because they are not good test takers due to lack of focus. Some participants also indicated that they took an SAT prep course to support their learning and mentioned that this helped them made an acceptable score to get into college. For instance, Natalie did not like her initial SAT score and decided to take the test again to see if she could get a higher score. She mentioned that her score was “I think was 1030 or something like that” and that when she took it a second time, she “literally got either the same score or 10 points higher.” When describing the difficulty of the test when taking it a second time, she explained, “it was kind of easy because I remember I had this in a SAT prep class.” Sarah, on the other hand, had to take the test three times to get the score she wanted to get into college and due to a focus issue. She indicated that she “isn’t a good test taker” and that having to sit “for hours just to sit in the same room and just take a test, I really hated it.” She, on the other hand, took the test three times because she wanted to keep doing better each time and she did eventually. According to her taking the test multiple times:

kind of did help me because I was just going to take it and then the second time, I thought that that would be my final time. But I felt as if I was to go in one more time and focus and study more before I actually went and took the test that I would get a higher grade and that's what actually happened.

Tammy also attested that, while she did make good grades in school, she did not do as well as she thought she would on the SAT. Like several other participants, she also had to retake the test to do better. Specifically, she acknowledged “like, the SAT, I did, like, really bad on it and had to constantly keep taking it over and over. It's just, like, to me, that test is a kind of show.” She also mentioned that she needed additional assistance to

prepare for the test. She attributed her lack of success on the test was due to “pressure” and that “the stakes were really high. It's the test basically to get into college.”

Participant data showed mostly positive school experiences and very few recalled negative experiences directly with educators. While there were some difficulties with teachers and assignments along the way, overall, they were able to overcome these issues with parental and educator support. Half reported secondary school was more difficult than elementary mainly due to the rigor of assignments. Some also indicated a lack of interest in assignments in middle and high school as a reason why they were not initially successful. Most participants, however, were able to learn and overcome their ADHD in secondary school by engaging in various strategies, which included staying on top of school work, working hard to focus, using specific studying techniques, and tutoring. Half of the participants also noted that they accepted their ADHD more as they grew older, in part because more peers were receiving similar diagnoses, making it less stigmatizing. Half of the participants mentioned that an improved work ethic and structured lifestyle came out of living with ADHD in secondary school. Most participants stated that they did well in school, taking Advanced Placement (AP) or honors level courses. Half also explained that attending college was reinforced by their parents and that not going was not an option. Lastly, while most participants took the SAT, half reported taking it more than one time, citing focusing issues as a determining factor for not doing well the first time.

Research Question #6: Differences in Participants' School Experiences and Outcomes by Race/Ethnicity, Gender, Socioeconomic Status, and/or Cultural

Background

This section addresses emerging themes in race/ethnicity, gender, socioeconomic status, and cultural background for this sample of eight participants in this study. The reason these are emerging themes is because of the small sample size and the fact that they did not strongly surface from the analysis. Future research could explore these emerging themes in greater depth.

Race/ethnicity. The White participants in this study acknowledged that at an older age they could have chosen to use medication, while none of the African American participants in this study reported this as an option. Additionally, three of the four African American participants reported their ADHD was not severe enough to take medication while none of the White participants reported this information. This difference between the two sets of participants might account for the African American students' lack of consideration of medication as an option later in their teen years. Two of three White participants noted negative experiences of others and one of three mentioned health reasons as a factor to not take ADHD medication. Most of the Participants of Color in this study indicated the motivation of team sports supported their positive educational trajectories while none of the White participants noted this at all. Three out of four African American participants cited specific positive teacher interactions while only one of three White participants made a similar observation. The only Hispanic participant also mentioned specific positive teacher interactions. Additionally, most African American participants cited being treated normal by their

teachers while none of the White mentioned normalcy as a mode to how they were treated. Lastly, all racial/ethnic minority participants (five out of five) indicated positive peer experiences compared to only two of three Whites. One of the three White participants indicated an overall negative interaction with peers.

Male and female. Six differences were found when taking gender into account. The majority of male participants in this study indicated medication was an option at an older age compared to only one female, Betty. Her reasonings for considering this option was because of her concerns over high stakes testing and the rigors of secondary school. These same sentiments were also reported by the male participants. Three out of the four males compared to only a single female, Natalie, found that the use of rigorous exercise like running was used as a form to mitigate their ADHD symptoms. Conversely, most female participants in this study mentioned that team sports contributed to positive educational trajectories while only one male, Billy, cited the same thing. Next, most male participants revealed having at least one close friend with ADHD while none of the female participants had any. When it came to support at home, three of the four of female participants pointed out that their parents provided tutoring support while none of the male participants were provided this at home. Lastly, the four female participants cited having to take the SAT at least two times explaining they didn't get the score they wanted or didn't do well enough. Males, however, only took the SAT one time due to their perception of making an adequate score on it the first time.

Socioeconomic status. Due to the fact that there was only one participant from a working class family, only two differences were noted between him and the remaining from middle class families. The working class participant in this study did not receive

tutoring support at home while the middle class participants did. One might conclude this was due to the fact that the middle class families had resources like time to be able to provide such support. Additionally, the participant from the working class family also indicated that he had experienced more negative teacher interactions while in school compared to the rest of the participants from middle-class families. He mainly attributed these negative interactions to his talkative nature and how he felt teachers thought he “would never shut up.” This finding suggests that access to equitable education may have been restricted for the participant from the working class family compared to the other participants from middle class families.

Cultural background. There was one difference noted between Participants of Color and White participants in this study related to their cultural beliefs involving ADHD. The African American and Hispanic participants in this study mentioned how a strong cultural belief around an ADHD diagnosis was initially one of “not taking it seriously” by their parents. Tammy, for example, indicated that in “Black society, a lot of Black parents don't seek help or to get their kids diagnosed with things and luckily my parents did, so that helped.” Natalie, also mirrored what Tammy explained about Black culture in that as a “whole the African-American community is kind of like, not really, I wouldn't say they don't believe in, uh, you know, like mental disorders, psychological disorders as a whole” but that they “don't take it seriously.” Additionally, highlighting the beliefs of her African American culture, she stated that “if a black child had depression, their parents wouldn't take it as seriously, you know?” Billy, growing up in a Hispanic family also noted the same disbelief of mental disorders by stating he grew up in a “typical old-school Mexican families that are like, no, he can't really have it

[ADHD]” and, in regards to him declining his ADHD medication, his family would say “the diagnosis isn't even a real thing so why would you give him medication for it?” The cultural backgrounds of these participants did indeed have an influence on their initial opinion of ADHD, but all eventually decided to get diagnosed with ADHD and pursue alternative treatments to improve their school experiences and outcomes. In contrast, the parents of the three White participants in this study appeared understood the diagnosis and acted on it to address their symptoms. Morgan, Staff, Hillemeier, Farkas, and Maczuga (2013) found that racial/ethnic minority students (Hispanic and African American included) typically have a rate of diagnosis that is 69% lower than those who are White. This finding of differences between the Participants of Color and White participants appear to support from this study seem to align to their findings because the Participants of Color did not immediately act upon the diagnosis.

Summary

This study presents the experiences of eight young adult participants who were diagnosed with ADHD in childhood and did not take ADHD medication as a way to mitigate their symptoms. Through the use of my conceptual framework, I examined each participant’s consideration of treatment options, interactions and relationships with peers and other important individuals, family knowledge and support, comorbidity of other mental disorders, and teacher knowledge and support. Guided by the conceptual framework, 19 themes were identified and then aligned to address each of the five research questions. In Chapter V, the findings are discussed within the context of the literature reviewed in Chapter II. Finally, implications for school practice and policy, leadership preparation, and future research are discussed.

V. DISCUSSION AND CONCLUSIONS

This chapter presents a discussion of findings in relation to extant literature and concludes with recommendations for policy, practice and leadership preparation. This study examined the school experiences and outcomes of individuals diagnosed with ADHD in elementary and who did not use ADHD medication to mitigate their ADHD symptoms. The following research questions guided this study:

1. What were the decisions regarding the use of ADHD medication?
2. How did participants how control their ADHD symptoms during their school years?
3. What were participants' relationships with parents, peers, and educators during their school experiences?
4. What support was provided in school and home?
5. What were the educational trajectories of participants over time as they managed symptoms through non-medicated means?
6. What were the differences in participants' school experiences and outcomes by race/ethnicity, gender, socioeconomic status, and/or cultural background?

Data were collected via purposeful criterion sampling (Patton, 1990) from participants attending a university in the southwest of the United States. During the summer of 2018, an email was generated and sent to roughly 3,800 university students between the ages of 18–20 who were enrolled in summer courses. Interviews were conducted with eight participants both in person at a local coffee shop in the city where the university is located, or via Apple Facetime. Participants answered questions related

to the following conceptual framework: (1) comorbidity, (2) family knowledge and support, (3) teacher knowledge and support, (4) treatment options, and (5) peer interactions and relationships situated within a sociocultural environment.

Key Findings

Within schools, children diagnosed with ADHD typically report more difficult school experiences than those without ADHD (Kendall, Hatton, Beckett, & Leo, 2003). There is also a typically negative association about how students with ADHD perceive, manage, and experience school; this negative association is especially common among males (Krueger & Kendall, 2001). More recent studies have indicated that children diagnosed with ADHD do not perceive a diagnosis of ADHD as a positive factor in their lives (Walker-Noack, Corkum, Elik, & Fearon, 2013).

In contrast, findings from this study found the school experiences of the eight participants were mostly positive and, while some of them had isolated negative school experiences related to their ADHD, the majority of their experiences were beneficial. This resulted in their successful high school graduation and supported them generally, in life, and particularly through the process of successfully gaining admission to and succeeding in college. The findings suggest students in this sample diagnosed with ADHD who did not take ADHD medication appeared to be successful academically as a result of: (a) well-informed families who provided structure and support; (b) close, positive relationships with knowledgeable teachers and mentors; (c) assistance to find alternative tools and structures to personally overcome the stigma and effects of ADHD in order to function and succeed in school; (d) and because they were exceptionally bright and resilient young adults. The following review of each theme provides a response,

based on the findings of this study, to the current research in relation to the school experiences and outcomes of children diagnosed with ADHD.

Review of Findings and Interpretations

The following sections are discussions of the findings and interpretations for each research question and additional theme that was revealed. Connections were made both to the literature review and to the participant's experiences to make overall conclusions to this study's findings.

What were the Decisions Regarding the Use of ADHD Medication?

Studies have shown that teachers are typically the first to suggest ADHD symptoms in children (Sax & Kautz, 2003). Half of the participants indicated some instances where this was the case, but the other half claimed they did not remember the exact reason for the diagnosis since it had occurred early in life, in elementary school. Natalie, for example, explained that her second-grade teacher, who had a hard time with Natalie in class, disclosed these issues to Natalie's parents which in turn caused her parents to take her to the pediatrician. Billy had similar experiences with his diagnosis. He was a child with a lot of energy and when his mother went to speak to his teachers, they told her, "Look, he's not being bad. So, there were special rules. I could get out of my seat and stand up and raise my hand." This reinforces what most participants stated. Billie was doing fine in school, but teachers noticed he needed extra accommodations in class for him to be successful. Sarah also mentioned that she was very talkative and would sit in the back of the class, not paying attention unless the teacher asked her to sit in front of the class (per her mother's direction). Each was diagnosed with ADHD hyperactivity or combined type. On the other hand, those that were diagnosed with

ADHD inattentive (Brint, Betty, Jared, and Tammy) specifically recalled their diagnosis as the teacher informing parents about the inability to focus or remember what they just read (reading comprehension). Additionally, there was a connection between those diagnosed with some form of ADHD inattentiveness or combined (Casey, Betty, Brint, and Billy) and the option for them to take ADHD medication at an older age. The findings suggest both the rigors of school combined with getting distracted easily and that participants diagnosed with some form of ADHD inattentiveness experienced more difficulty in school than those diagnosed with the hyperactive form.

There were connections between the type of ADHD diagnosis with how participants were eventually diagnosed with ADHD. Students with ADHD may also be misdiagnosed as having a learning disability or behavioral disorder (Schoemaker, et al., 2012). However, none of the participants reported any misdiagnosis in this study. This finding may or may not relate to the parental and school related factors that each participant grew up with as most of them reported having had positive school experiences. There seems to be two ways that participant's parents received the ADHD diagnosis for each participant. Participants (i.e., Natalie and Billy) noted that they were either getting in trouble due to lack of control which eventually led to their diagnosis of either ADHD hyperactivity or ADHD combined type. Others mentioned their diagnosis came from an inability to comprehend or focus which matches up with their inattentiveness.

How did Participants Control their ADHD Symptoms during their School Years?

In contrast to the literature which shows that medication is the prominent method used to control ADHD symptoms (Daley, Creed, Xanthopoulos, & Brown, 2007; CDC,

2013; Visser et al., 2014), all parents of the participants chose not to allow them to take ADHD medication mainly because participants were doing well in school already and had family members or a friend with negative experiences with ADHD medication or other drugs. Indeed, many of the participants reportedly did well in elementary and were eventually in advanced level classes like Advanced Placement (AP) or taking dual credit courses to complete college work prior to going to college, so the parents' perception of their children's performance appears to have been accurate. The decision to not take medication was made during their elementary years; overall, participants cited high academic achievement as a specific reason why medication was not chosen. Eventually, however for some, medication was an option participant considered when they got to secondary school because the work grew harder. Instead of choosing this option, these participants specifically declined the medication and developed a stronger work ethic or structured life style or engaged in vigorous exercise to ensure they rose to the level of the dual credit or Advanced Placement courses they were taking. The development of problem-solving skills as a treatment for ADHD has shown some success with individuals with ADHD (Oortmerssen et al., 2013) and these skills seem to have been developed by several of the students in this study.

Parents also have distinct preferences for treatment options like medication (Bull & Whelan, 2006). Similar to the finding by Bull and Whelan, participants' parents in this study were clear about their reasons for choosing non-medicated means; either they were doing well in school or cited negative experiences with acquaintances. As Chen, Seipp, & Johnstone (2008) found in their work, sometimes parents of the same child differ in their beliefs about ways to mitigate ADHD symptoms. This finding would suggest the

participant's parents may have been well informed about various treatment options and that this belief to choose non-medicated options was well ingrained in their decision.

The use of rigorous exercise and involvement in team sports for participants were self-actualized ways participants coped with and controlled their ADHD symptoms, specifically in secondary school. According to Dogget (2004), team sports, as a type of ADHD intervention, can be used to provide corrective feedback to students and positive reinforcement like *pass to play* in order to support student motivation to focus in school. Participants who found on their own to use this as a method specifically stated how their relationship to their coaches and given the ability to play for a team positively influenced them to work harder in school to play. The use of exercise, specifically cardio exercises like running or biking, has also been shown to significantly reduce ADHD symptoms (Den Heijer et al., 2017). Similarly, several participants in this study reported using exercise as a support method. When compared to those citing team sports, this group of participants found exercise helped as a focusing measure instead of a pass to play mentality. Both strategies were found to be successful options for participants in this study.

What were Participants' Relationships with Parents, Peers, and Educators during their School Experiences?

Another finding was strong relationships with parent, educators, and peers. These relationships extended from friends who were supportive of their ADHD diagnosis, to parents who were advocates for providing positive reinforcement or had empathy for their condition which supported participants with getting what they needed to be successful. In addition, participants' teachers who built a connection and took the time to

explain things in another way, provided tutoring support, or mentored them within a sports setting provided significant levels of support and encouragement.

Parental relationships ranged from trusting to motivational to empathic which in turn led them to allow participants to overcome their ADHD symptoms in a myriad of ways. Most participants also noted that just because they had ADHD, this did not change the fact that their parents wanted them to attend college. So, in short, their parents were not going to allow them to lose traction of having high academic expectations and provided support and guidance in their own way to eventually letting them figure things out for themselves in secondary school. The extensive processes these parents took to support their children with ADHD and-aligns with the findings of Sayal, Ford, and Goodman (2010), who reported that untreated ADHD students tend to have poorer academic attainment compared to those who have the parental support in their ADHD diagnosis.

Singh et al. (2010b) found students with ADHD report they take ADHD medication to improve relationships with friends. Within the context of this study, none of the participants took ADHD medication, but still had positive relationships with friends. Many of the participants mentioned that they had few close friends throughout school. While the reason for having few friends was not specifically noted in the data, they did indicate that their friends were their friends regardless of the ADHD diagnosis. As stated in the previous section, many of the participants did not mention their diagnosis to their friends at first in fear of how it might affect their relationships. Later on, when in secondary school, this seemed to change because of the “normalizing” of ADHD due to many other students who spoke freely about having it. It was at this time participants

stated they began to inform their friends and that their reactions were positive. Negative remarks by peers once they find out about an ADHD diagnosis can foster negative self-esteem for children with ADHD (Callies, Bertot, Motte, Raynaud, & Abely, 2014). This, however, was not the case with any of the participants. There was a sense from their friends of this is just who they are, and it made sense to their friends when participants eventually told them about their diagnosis. It was more of an answer as to why they are the way they are. Participant's initial hesitation to tell their peers may be a reason as to why participants did not have many friends but only a few close ones.

Strong connections with educators was also a contributing factor for overall positive school experiences but also a strong factor for how negative teacher interactions also may have stunted their academic successes if participants would have had more teachers who didn't build relationships or didn't provide alternative teaching strategies. Several participants mentioned some of their positive experiences as when their teachers treated them as "normal"/nicer, or like any other child in class. When referencing positive relationship building, Climie and Mastoras (2015) discussed using positive psychology and really focusing in on their strengths which can support well-being and foster resilience. Most specifically mentioned was the positive connection they had was due to the educator's knowledge of ADHD and willingness to take the time to make sure they were understanding the content. Conversely, some (i.e., Natalie and Billy) also mentioned specific times when their ADHD symptoms like being talkative got them in trouble resulting in negative teacher relationships. In Billy's case, he suspected some of these interactions were due to automatic negative thoughts from the teacher about ADHD. Educators who typically see ADHD as a weakness have been shown to have

negative experiences with students with ADHD (Jenson, Olympia, Farley, & Clark, 2004). Participants also mentioned that some teachers were unwilling to teach outside of the norm (teaching the whole class) and not building a relationship with the participant or providing differentiated instruction. Also, albeit a few, participants did not want the additional attention that educators provided. This made them feel stigmatized and not “normal”. Although a few participants felt some level of stigmatization, it appears, over time, the additional attention provided by the teacher was positively impactful on their school experiences and outcomes, which a few participants mentioned in this study.

What Support was Provided in School and at Home?

The data also revealed common overall factors that related to their positive school experiences and outcomes. Most notable was the main factor of support within school and at home. This seemed to be a significant influence on their overall positive school experiences and outcomes which culminated with entering college. Most participants noted that tutoring both at home and at school as a significant way they were able to get the support needed to stay on track academically. Most participants noted that structure provided within the home along with tutoring support at home helped them to succeed, especially throughout the middle and high school years. Furthermore, most of the participants indicated their parents were also in close communication with teachers, which may have been a contributing factor in their positive school experiences and successful outcomes.

To enhance the success of these students, parents and educators provided structure, fostered relationships, and allocated additional time to learn material (tutoring). There was a connection between the close communication the parent had with the teacher

in ensuring that the participant had accommodations like sitting in front of the classroom in order to focus and, eventually, understanding it was good for him/her. Tammy, Sarah, and Jared mentioned that their parents informed teachers of their ADHD diagnosis and asked that they sit in front of the class to pay attention better. This type of accommodation, which has been shown to support higher cognitive outcomes in students with ADHD (Doggett, 2004), appears to have been a contributing factor to participants' positive school successes. Research also indicated that children with ADHD often comprehend the importance of classroom accommodations as a means of managing their ADHD symptoms (Walker-Noack, Corkum, Elik, & Fearon, 2013). At some point, these participants mentioned feeling some sort of stigmatization or feeling different from the norm because they did not necessarily want this level of attention in the classroom. Eventually, however, most noted that they realized they benefited from this accommodation because it assisted them in staying focused.

Although some participants reported having a few negative experiences with some teachers, they described their overall experiences as positive, noting specific teachers who were willing to provide the additional time to support their academic needs. Tammy, Casey, and Billy all mentioned a time in school when their teachers didn't take the time to teach differently or support their specific learning needs. Tammy, for example, had to take a class four times until she found a teacher that was willing to take the time to explain it differently which eventually led to her passing the class. Each of them also indicated, when they got to secondary school, close relationships with teachers along with various forms of tutoring support, was extremely supportive to their positive educational experience and outcomes. Both of these factors have previously been shown

to be effective support measures for children with ADHD (Hamilton & Astramovich, 2016). These statements make a recommendation for the need for educators to cultivate supportive relationships and utilize specific teaching strategies to reach their ADHD students. As a result of being provided meaningful and frequent teacher and educator support, participants better understood their ADHD condition and its impact on their learning. With this knowledge, participants appeared to develop a self-awareness of their individual condition and barriers to learning, as well as strategies for overcoming these obstacles.

Charach, Yeung, Volpe, & Goodale (2014) contend that parents should be aware of potential challenges and experiences for children with ADHD in order for treatment options to be successful. Throughout the findings, participants reported that most parents clearly understood their child's challenges because they either had acquaintances who had negative experiences with ADHD medication or drugs which prevented them from taking ADHD medication, or knew how to support their child throughout school. After school structure and routines at home, for example, have been very effective ways for children with ADHD to overcome challenges for completing homework (Firmin & Phillips, 2009). This method was reported by several participants as a way to support them both at home and at school. Parents played a significant role in supporting the participants in school through tutoring at home and teaching organizational tools and structure which allowed the participants to focus in order to understand difficult concepts in school. Some participants did, however, indicate that if alternatives to ADHD medication had not worked that medication usage may have been an option.

Participants with parents who provided structural or organizational support at home also showed more self-efficacy responses, such as working harder to overcome rigorous schoolwork and not using their ADHD as an excuse for failure. This type of support is documented in Firmin and Phillips' (2009) research demonstrating that structure and routines in the household, while difficult to maintain, were critical to the academic success of a child with ADHD. Hansen and Hansen's (2006) research also showed parents played a significant role in behavioral intervention (or successful medication). Brint, Sarah, and Casey specifically discussed how, when their parents received the ADHD diagnosis, they began some level of organization support at home like planning assignments and a focus on harder classes.

The stigmatizing effects of categorizing ADHD students as "different" from the norm is well documented in the literature (Parens & Johnston, 2009; Krueger and Kendall, 2001; & Wilson, 2013). A few participants cited their parents' continual communication to them that they were "normal" so they would not feel the stigmatization of having ADHD and to ensure they knew they could achieve at high levels. A little over half of participants' parents in this study, however, chose to inform their child that he/she was different from children without ADHD. Their purpose in doing so was to highlight the behaviors and strategies their children needed to learn to overcome their ADHD symptoms and have successful school experiences and outcomes. According to these participants, this parental acknowledgement of their difference made them more aware of their condition.

Interestingly, they also reported experiencing more difficulties in secondary school. This study was unable to determine how the relative benefits of being classified

as “normal” or “different” played out for these students. It can be said, however, that regardless of the approach, the participants experienced mostly successful educational experiences through their elementary and secondary schools, and all were admitted and are currently attending college.

There also appeared to be a relationship between the degree of severity of ADHD symptoms and level of support provided at school and home. Casey and Billy, for example, were the only participants diagnosed with ADHD combined type (hyperactive and inattentive) and reported the greatest level of support in school and at home. Casey’s parents provided organizational support at home and worked with his teachers to assure he received one-on-one tutoring, preferential seating, and alternative testing arrangements while at school. Billy’s mother was in very close communication with his teachers and on him to ensure he was completing the school work. Billy also noted the strong connection with his teachers and the level of support they provided was a means to his school successes. This individual support has been shown to be critical in the success of students with ADHD (Hamilton & Astramovich, 2016). Other participants had some of these same support measures, but not all. Those diagnosed with ADHD hyperactivity or inattentive reported that they did not receive the same level of support received by the participants who were diagnosed with ADHD combined type. For these eight participants, this finding suggests that the level of support provided in school and at home seems to match the severity level of ADHD diagnosis.

What were the Educational Trajectories of Participants over Time?

Participants noted that in elementary school things were going well as far as grades were concerned, but each experienced individual instances of either hyperactivity

or lack of attention which led teachers to recommend ADHD testing to the participants' parents. It was during this time that communication between most participants' parents and teachers began to be established to better understand what was happening in the classroom and was also the time period in which some parents began providing supports at home, such as structure or spending time with them to ensure their work. Participants mentioned few instances of negative interactions or even hardships with their school work during these elementary years. In terms of peer relationships, participants reported that they and their friends didn't know much about ADHD at the time; as a result, the diagnosis did not have a significant impact on the quality of their friendships. For a few, however, the stigma of the ADHD label did hit during this time, making them feel "different" from the norm.

Most participants mentioned that secondary school was much harder than elementary because the coursework grew harder. This finding is supported by the research from Kendall, Hatton, Beckett, & Leo (2003) who found students with ADHD report more difficulty in school than students without ADHD. With the rigors of secondary school also came a greater need for tutoring and other forms of teacher support. It is important to note that, during these secondary years, half of the participants, Casey, Brint, Billy, and Betty, indicated that their parents gave them the option to take ADHD medication because of the increased rigor of classes, but that each decided not to. What also came out of the secondary experience was an increase in participants taking the initiative to mitigate their own symptoms. Some chose rigorous exercise as a means of controlling hyperactivity. Others joined team sports, which served to motivate them to work hard in class so they could continue to play. Above all, these

students appeared to understand their diagnoses, and took active measures to meet their own needs-

As stated earlier, most participants did very well in school, but when it came to taking the SAT, several had to take it more than one time in order to get the score they needed to get into college. A few participants found that taking test-preparation courses assisted them in achieving an acceptable score. Although all participants are currently in college, this study did not include data on how they are currently doing in their college coursework. Overall, parents' decisions to provide ongoing support seemed to be motivated by two expectations: that their children would attend college, and that they would learn to self-manage their symptoms, and go onto live a successful and prosperous life.

For the participants in this study, viewed from a comprehensive standpoint, positive experiences outweighed negative ones, likely due to a combination of teacher/parental support and self ownership of treatment, leading consequently to improved self-efficacy. Participants noted, however, that most classes in secondary school were challenging because they found it hard to stay focused on the work and because their interest in the subject (and others like it) was low. Participants had to apply themselves more, which is one example of how after school tutoring supported their success. Billy, for example, did very well in elementary and middle school and then chose to do well in the classes that positively affected his GPA for admissions to college and chose not to apply himself in classes that did not. This choice of applying oneself seemed like a common theme among these participants.

Children with ADHD also report having less self-efficacy (a belief in one's capacity to perform) than their peers that do not have ADHD (Tabassam & Grainger, 2002). Most participants had a particular story to tell of how they overcame ADHD to build a positive work ethic or positive view of self and how it eventually led them to getting into college. Despite the challenges ADHD posed for these students, all either took advanced level courses in school like Advanced Placement (AP) or dual credit courses or mentioned that they made A's and B's in school. Most also had expectations from their parents that they would attend college when the time came and took the SAT one or more times to get a good enough score to get into college. Some specifically mentioned that they learned a certain level of self-efficacy and chose not to take ADHD medication in order to be able to focus more on their studies. This evidence highlights how, for this sample of participants, parents did have high expectations for their children even without them taking medication to perform better in school. In some sense, maybe unknowingly, their parents developed participants' self-efficacy throughout their elementary years through either reassurance or accepting ADHD as a difference. And, when the option of medication was presented participants did not feel a need to change what they were doing even though ADHD was becoming a more socially acceptable thing in secondary school.

Most participants noted that at some point in school, whether in elementary, middle, or high school, coping with some deeper level of difficulty as a result of having ADHD led to overcoming this particular challenge and resulted in an improved work ethic and a more positive outlook on themselves. Most specifically, some participants noted having to "work harder," "refusing to use ADHD as a crutch," and just "deal[ing]"

with it. This new outlook led them to continue to do better in other parts of their lives which led them, eventually, to college. They knew they could do something that was difficult and now they were going to take the advanced level courses, put in the extra time to get the support they needed, get organized, and study hard to take and/or retake the SAT to eventually get into college.

What Were the Differences in Participants' School Experiences and Outcomes by Race/ethnicity, Gender, Socioeconomic Status, or Cultural Background?

Race/ethnicity. White students tend to be disproportionately under-identified with ADHD compared to their African American and Hispanic counterparts who tend to be over-identified (Hosterman, DuPaul, & Jitendra, 2008). Since all participants were diagnosed with ADHD in elementary school, this research could not be confirmed with this study's findings. Several differences emerged between the experiences of the Participants of Color and White participants. First, all three White participants noted that as they entered high school, their parents gave the option of taking ADHD medication; meanwhile, three of the four African American participants stated that such an option was never made available to them. Another difference was found in participants' reasons for avoiding ADHD medication: although both groups mentioned witnessing the negative medication experiences of others and the belief that they were already succeeding academically without such medication, White participants also cited personal medical reasons for medication avoidance. Lastly, participants with African American and Hispanic lineage reported family members who questioned the validity of diagnostic tests for learning disorders or other behavioral issues. All, however, had families that chose to

obtain the ADHD diagnosis for their child in order to get the help and support they needed at home and at school.

Another difference found between White and Participants of Color in this study had to do with the type of physical activity used to mitigate symptoms. Most of the Participants of Color chose to engage in team sports, noting that doing so allowed them to build strong personal connections with their coaches, who motivated them to do well in classes. In contrast, most of the White students cited the use of rigorous individualized exercise (i.e., running and bicycling) to mitigate their ADHD symptoms. Additionally, most of the African American participant group mentioned educators treating them “normal” while none of the White students reported this observation.

Gender. Males are also reported to have higher rates of ADHD than females (13.2% compared to 5.6%; CDC, 2013). This study could not support this contention because my sample consisted of all participants with ADHD. However, one demographic difference worthy of note was that three out of four males compared to only one of four female students reported secondary school was hard for them, adding that they subsequently had to work harder in order to succeed. The study also found that the African American female participants mentioned team sports as a way to stay motivated to do well in school while none of the males, regardless of race/ethnicity, cited the same thing. Lastly, the study also found that all female participants chose to take the SAT more once than to achieve an acceptable score, while males reported taking the test just one time. Most of the woman reported focusing issues and stated that they just were not good with taking tests as the reasons for the multiple attempts.

Socio-economic class. In this study, no differences with regards to the approach to the ADHD diagnosis were self-reported along class lines. Only one participant, Billy, classified his family's socioeconomic status as working class. He did not give any indication that his options for ADHD treatments were any different than the remaining seven participants all of whom classified themselves as middle class. All families, regardless of socio-economic class, chose to have their children go through the diagnostic process, all chose to avoid ADHD medications, and all provided needed support for their children.

Cultural background. There was one difference noted between Participants of Color and White particularly in their cultural beliefs of not only ADHD, but any sort of diagnosis in general. All African American (Tammy, Natalie, Sarah, and Jared) and Hispanic (Billie) participants mentioned how their strong cultural background belief of ADHD was typically of not taking it seriously but eventually were diagnosed while White participants (Betty, Casey, and Brint) mentioned their acceptance and need to address it immediately. The cultural backgrounds of these participants did indeed have an influence on their initial opinion of ADHD, but all eventually decided to get diagnosed with ADHD and pursue alternative treatments to improve their school experiences and outcomes. In opposition, White participants mentioned no cultural factors that influenced their decision, but their interviews indicated they identified ADHD as something that needed to be corrected and, through various ways of mitigating their ADHD symptoms, were able to meet the needs.

Implications for Practice, Policy, and Leadership

Findings in this study inform both theory and practice. Comparing my findings with those in the literature, it seems most extant research has been based on negative experiences of children with ADHD (Jenson, Olympia, Farley, & Clark, 2004). This study provides a positive perspective, having uncovered a number of successful ways non-medicated children diagnosed with ADHD can manage their symptoms through a multitude of support measures. While there were negative teacher interactions and hard school work in middle and high school, the participants' ability to overcome ADHD through the use of classroom accommodations, parental support, and vigorous exercise provide clues as to how ADHD may be successfully managed without medication.

Educator/school practice

Teachers could benefit from this study by understanding how to academically and socially and emotionally support children who were diagnosed with ADHD. Teachers may benefit from giving individual attention to academics, slowing down their teaching pace, or restating their teaching in various ways during tutoring sessions. Building strong relationships is important not just for students diagnosed with ADHD but for all students. Because students know teachers care, they are motivated to learn. Both social and emotional support seemed to be necessary to improve the educational experiences and outcomes of participants diagnosed with ADHD.

Teacher-student relationships. Practitioners may benefit from this study in that the results highlight the need to build positive relationships with students with ADHD. Educators who take the time to get to know their students seemed to have better results

from participants in this study. This finding may benefit not only students with ADHD, but all students.

Pedagogical practices. Educators could benefit from breaking from whole group teaching to teaching more to student's individual needs, like tutoring or in class accommodations that support individual student learning needs. Based on the findings of this study, it would seem that more K-12 professional development in the area of small group instruction would be necessary in order to improve the lives of not only students with ADHD, but all students.

Parent practice

Results of this study highlight the need for parents to support children with ADHD at home and keep in close communication with educators at school. At home, parents may benefit their child by providing organizational or one to one homework support, assuming they have the capacity to provide it, to improve the academic successes of children with ADHD. Parents may also increase the school success of their child with ADHD by ensuring implementation of relationship-based systems in class by keeping in close communication with educators and accommodations are put into place effectively. In order to facilitate their advocacy, parents will benefit from becoming educated about this disorder, and familiarizing themselves with the research on currently accepted best practices for educating students with ADHD. Utilizing routines and teaching children organizational skills may also be a tool that parents may use to support the growth of their children with this diagnosis. This study provides conflicting evidence as to whether parents should reassure their child that they are "normal" or be straightforward about their child's differences; in this study, both techniques appeared to

have positive effects on student outcomes. In other words, parental distinctions between “normalcy” and “difference” seem to be far less important than the emotional and material support provided.

Implications for policy

This study highlights the need to ensure parents and students understand policies that focus on specific accommodations and modifications guaranteed to students diagnosed with ADHD who do not take ADHD medication. Section 504 and Special Education serve as mechanisms to serve students with ADHD accommodations and modifications (Yell, 1998), which may be beneficial for positive school successes and outcomes. It would also seem necessary to do something for children diagnosed with ADHD that do not carry those labels. To support those not being served in Section 504 or Special Education, school districts could implement tracking measures and committees of teachers, administrators, and specialists to ensure the accommodations mentioned in this study are utilized school-wide.

Implications for leadership preparation

It is important that school leaders provide both a climate of support and material assistance to their teachers and students with and without ADHD. School leadership may be able to impact an entire campus of teachers and students, thus making their impact on children diagnosed with ADHD critical to their educational experiences and outcomes.

Hiring decisions. Leaders in school, specifically those directly in charge of students, should recruit teachers who understand how to build relationships with, and know how to differentiate their instruction for, children with ADHD. They may do this by requiring evidence of how they provide support to students in the classroom, asking

about support students with various needs in interview questions, and inquiring during reference checks.

Direct involvement with parents. Leaders may want to consider sharing the information found in this and other studies with parents and students. Leaders could require frequent conferences as a means to highlight strong connections between the school and home are needed. Additionally, leaders could hold parent information nights that have teachers showing parents how to provide instructional support or managing their child's schedule at home to ensure they keep up with their schoolwork.

Providing professional development to teachers. Lastly, implications from this study may add to the literature about inclusive classrooms. School leaders could require that staff attend frequent and on-going professional development in various teaching strategies that focus on differentiation of instruction and how to build relationships with students.

Recommendations for Future Research

Because the sample only included participants who are currently in college and thus had successful educational outcomes through secondary school, and from predominantly middle-class families, future research should focus on participants who did not attend college and did not have opportunities to explore other options. Other future studies could also focus on students with a similar profile of ADHD who were pushed through or dropped out of the K-12 system, and take a more in-depth look into children with various types of ADHD and their specific school experiences and outcomes. Doing so may highlight other positive experiences that led to academic success or, add to the body of negative school experiences that may have hindered their

success. This would provide students, educators, and parents more information to support school improvement initiatives related to better serving students with ADHD.

Since this study was comprised of a very small sample of participants who did not take ADHD medication and were academically successful, future research, using a larger sample, may find additional ways in which non-medicated students with ADHD can cope with their ADHD symptoms and successfully matriculate from elementary to college. Further research could be conducted on how just parent involvement or educator involvement alone affects the educational experience and outcomes of non-medicated students with ADHD to see if they have similar experiences and outcomes. The success of non-medicated students with ADHD to develop a deeper and more positive self-efficacy also warrants further research.

Participants in this study were found to have very close ties to both their parents and teachers; citing tutoring and relationships as strong contributing factors to their positive school experiences and outcomes. Future research could dive deeper into the relationship factors of parents and their children diagnosed with ADHD and how it relates to school performance and overall successful experiences and outcomes. Specifically, this research could focus on the outcomes of parents who advocated their child to be viewed as normal vs. those that taught the various differences in their children diagnosed with ADHD. Future research could investigate how teacher-student relational factors impact student performance in school. Additionally, future research could study if the increase in ADHD identification is related to the increase in high stakes testing.

In addition, participants were mostly found to have a few close friends who were very supportive when they learned the participant had ADHD and gave them positive

support throughout their school years. Future research could explore how these relationships with friends transpired over time after learning about the ADHD diagnosis. A more in-depth analysis of students who decline medication because they are already doing well in school may be an area of focus for future research. Given the many documented side effects of both stimulant and non-stimulant ADHD medications, including sleeplessness, dizziness, headaches and stomachaches, fatigue, drowsiness and mood swings (Bates, 2009; National Institute of Mental Health, 2016; Parker, 2005), one has to wonder if these non-medicated participants were able to develop this increased self-awareness because their minds were not clouded by medication.

Future research could dive deeper into reasons for this phenomenon or investigate whether this is truly a male/female issue or an issue of race/ethnicity. Questions may arise around the behaviors of males compared to females and or the expectations educators have for them. Future research could also compare the school experiences and outcomes of children diagnosed with ADHD who took ADHD medication with those that did not take medication. Lastly, few differences in school experiences appeared to be associated with factors related to race/ethnicity, gender, or socioeconomic status in this study. Cultural background seemed to have a little impact within this study, but future research based on this factor alone may be necessary to understand how culture affects different racial/ethnic families' beliefs about their child diagnosed with ADHD and recommended support measures. Since these factors were not a consideration in selecting participants for this study, future studies could specifically look at school experiences related to these demographic variables.

Conclusion

This phenomenological study was designed to examine the educational experiences and outcomes of children diagnosed with ADHD in elementary school who did not take ADHD medication to mitigate ADHD symptoms. The stories of the eight participants and their successful educational outcomes highlight the importance of both parental and educator involvement in their lives. Findings revealed that non-medicated students with ADHD prevailed over the barriers they faced from their condition with the assistance of communication between educators and parents, tutoring provided by teachers or parents, organizational and structural routines both in and out of the home, and close relationships with educators and parents. Additionally, this study highlighted the importance of strong connections with educators who are willing and able to provide differentiated instruction to students with special learning needs. While negative instances were limited within this study, it is important to also understand how educators who do not support inclusive classrooms may be hindering student's self-efficacy. Lastly, this study revealed that participants managed their ADHD symptoms in non-medicated ways through the use of frequent exercise and participating in team sports. Apparently, expending energy through rigorous exercise allowed them to refocus and concentrate in order to learn.

The study adds to the dearth of literature on the school experiences of non-medicated children diagnosed with ADHD. With this information parents and children can make an informed decision about how to mitigate ADHD symptoms. Parents and children should be fully aware of these school experiences to make an informed decision about whether to choose medication for treating ADHD symptoms or pursue alternative

interventions. These are important considerations because the effects of ADHD medication, non-medicated treatments, and the experiences associated with both can have a lasting impact well into adulthood and potentially for the rest of their lives.

Conversely, alternatives to medication may not be as effective and as a result, children may not experience academic success, develop self-confidence, or grow socially and emotionally, results, which may also affect them throughout adulthood.

Throughout the development of this study I continuously pondered what would have happened if one of the supports (i.e., parents, educators, peers, structures) would not have been in place for these participants. If even one measure was missing, would they have had the same school experiences and outcomes? The randomness of these circumstances should not be left to chance, but rather we, as educational leaders, should develop systems to ensure equity of access to high quality structures and to teachers who understand each child and their specific needs.

As a child also diagnosed with ADHD in elementary, I noted similarities with how participants' parents within this study supported them to eventually lead them to positive school experiences and outcomes. While I was a child who did take ADHD medication to control my ADHD symptoms, my parents were also always in close communication with my teachers and also provided structural support at home to ensure I was successful in school. I firmly believe this level of support and reassurance from my parents and educators led me to be where I am today. I too, while rare in occurrence, noted specific negative experiences with educators whom were unwilling to support my ADHD tendencies and, not surprisingly, I did not do well in their classes. Eventually I realized the need to discontinue the use of medication and found alternatives like rigorous

exercise as a means to making me focus on my work. Today, overcoming my ADHD symptoms is a daily struggle but utilizing strategies, much like the ones the participants used, supports me to stay focused and remain successful in my life. Now that I have two daughters, I constantly think they may experience the same ADHD symptoms as myself, but with the learning acquired from this study, I now know I will be able to support them in their educational endeavors regardless if they are diagnosed with ADHD.

Reflecting on my experience as an educator for seven years and an administrator for six, I have seen how parents and teachers can work together to foster positive experiences for students with ADHD who do not take medication. While these parent/educator levels of support have been rare, like this study's findings, they do confirm the power of teamwork and the influence it can exert on students with ADHD. I was pleasantly surprised that all eight participants reported mostly positive memories and relationships throughout their educational days in elementary, middle, and high school because of the largely negative experiences mentioned in the literature review of this study. In addition, their tenacity to overcome ADHD symptoms to not only become productive in school, but subsequently to successfully leverage this acquired skill to improve other parts of their lives amazed me. This was truly inspiring and motivates me to apply these results to students in the school where I currently serve as principal.

APPENDIX SECTION

A.	RECRUITMENT EMAIL MESSAGE.....	159
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APPENDIX A: RECRUITMENT EMAIL MESSAGE

To:
From: Nathan Steenport M.Ed.
BCC:
Subject: Research Participation Invitation: School Experiences of Non-Medicated Children Diagnosed with ADHD

This email message is an approved request for participation in research that has been approved or declared exempt by the Texas State Institutional Review Board (IRB).

Dear XXX,

You are being asked to participate in a qualitative research project that seeks to investigate and understand the school experience of students diagnosed with ADHD who did not to take ADHD medication to mitigate their ADHD symptoms. You are specifically being asked to participate because you match the specific criteria for this study. The intent of this research is to understand your views and experiences of school and how they shaped who you are today.

If you volunteer to participate in this research, you will participate in an initial interview lasting for approximately 30-60 minutes. Interview questions will range from, how you were diagnosed with ADHD to your school experiences and outcomes. A follow-up interview will be conducted following initial interviews and artifacts may be collected to support qualitative findings. Interviews will be audio-recorded with your permission. Your participation is voluntary and as such, you may withdraw from the study at any time without prejudice.

Reasonable efforts will be made to keep the personal information in your research record private and confidential. Any identifiable information obtained in connection with this study will remain confidential and will be disclosed only with your permission or as required by law. The members of the research team and the Texas State University Office of Research Compliance (ORC) may access the data. The ORC monitors research studies to protect the rights and welfare of research participants. Your name will never appear on any survey or research instruments. No Identity will be made in the data analysis. All written materials and consent forms will be stored in a locked file on the investigator's password protected personal computer and the principal investigator, Nathan Steenport, will have sole access. Your response(s) will appear only in statistical data summaries when the data are presented in written or oral form at scientific meetings. Your name will never appear in any publication of these data. Data will be kept for three years (per federal regulations) after the study is completed and then destroyed.

To participate in this research or ask questions about this research please contact me, Nathan Steenport, at 512-627-7278 or via email at nrs24@txstate.edu

This project [insert IRB Reference Number or Exemption Number] was approved by the Texas State IRB on [insert IRB approval date or date of Exemption]. Pertinent questions or concerns about the research, research participants' rights, and/or research-related injuries to participants should be directed to the IRB chair, Dr. Denise Gobert 512-245-8351 – (dgobert@txstate.edu) or to Monica Gonzales, IRB Regulatory Manager 512-245-2334 - mailto:(meg201@txstate.edu).

APPENDIX B: CONSENT FORM TO PARTICIPATE IN RESEARCH

Title of Project: The School Experiences of Students Diagnosed with ADHD without Medication

Principal Investigator: Nathan Steenport, M.Ed.
Doctoral Student
Texas State University - San Marcos
College of Education
601 University Drive, ASB South 322
San Marcos, TX 78666
<mailto:nrs24@txstate.edu>
Cellular phone: (512) 627-7278

Texas State University - San Marcos IRB approval # 2018670

PURPOSE: You are being asked to participate in a qualitative research project that seeks to investigate and understand the school experience of students diagnosed with ADHD who did not to take ADHD medication to mitigate their ADHD symptoms. You are specifically being asked to participate because you match the specific criteria for this study. The intent of this research is to understand your views and experiences of school and how they shaped who you are today.

If you volunteer to participate in this research, you will participate in an initial interview lasting for approximately 30-60 minutes. Interview questions will range from, how you were diagnosed with ADHD to your school experiences and outcomes. A follow-up interview will be conducted following initial interviews and artifacts may be collected to support qualitative findings. Interviews will be audio-recorded with your permission. Your participation is voluntary and as such, you may withdraw from the study at any time without prejudice.

RISKS: In reflecting and talking about your school experience as a student diagnosed with ADHD, you may become uncomfortable with unhappy experiences or memories recalled. However, you may elect to not answer any of the questions with which you feel uneasy, and still remain a participant in the research. There are no known psychological or physiological risks associated with participating in this research. However, some of the questions may be considered sensitive. In the event that some of the survey or interview questions make you uncomfortable or upset, you are always free to decline to answer or to stop your participation at any time. Should you feel discomfort after participating and you are a Texas State University student, you may contact the University Health Services for counseling services at list 512-245-2161. They are located 298 Student Center Drive, San Marcos, TX 78666. If you are a not a Texas State University Student then you may receive support from the online counseling service www.betterhelp.com.

BENEFITS: You may not benefit from your participation in this research. Research on the school experiences of students diagnosed with ADHD may be beneficial to other students and parents looking for further research about experiences and outcomes of students with ADHD.

COMPENSATION: You will be compensated \$50 for the completion of both initial and follow-up interviews.

CONFIDENTIALITY: Your name will never appear on any survey or research instruments. No Identity will be made in the data analysis. All written materials and consent forms will be stored in a locked file on the investigator's password protected personal computer and the principal investigator, Nathan Steenport, will have sole access. Your response(s) will appear only in statistical data summaries when the data are presented in written or oral form at scientific meetings. Your name will never appear in any publication of these data. All materials will be kept for three years.

RIGHT TO WITHDRAW: You do not have to be in this study if you do not want to. You may also refuse to answer any questions you do not want to answer. If you volunteer to be in this study, you may withdraw from it at any time without consequences of any kind or loss of benefits to which you are otherwise entitled.

SUMMARY OF RESULTS: A summary of the results of this research will be supplied to you, at no cost, upon request.

VOLUNTARY CONSENT: I have read the above statements and understand what is being asked of me. I also understand that my participation is voluntary and that I am free to withdraw my consent at any time, for any reason, without penalty. On these terms, I certify that I am willing to participate in this research project.

I understand that should I have any concerns about my participation in this study, I may call the investigator who is asking me to participate, Nathan Steenport, at (512) 627-7278. If I have any concerns that my rights are being violated, I may contact the Director of the Office of Research Compliance at Texas State University - San Marcos, Becky Northcut at (512) 245-7975. This project was approved by the Texas State IRB on May 25, 2018. Pertinent questions or concerns about the research, research participants' rights, and/or research-related injuries to participants should be directed to the IRB Chair, Dr. Denise Gobert 512-245-8351 – (dgobert@txstate.edu) or to Monica Gonzales, IRB Regulatory Manager 512-245-2334 - (meg201@txstate.edu).

Participant's Signature

Date

Investigator's Signature

Date

APPENDIX C: INTERVIEW PROTOCOL

Introduction

You are being asked to participate in a qualitative research project that seeks to investigate and understand the school experience of students diagnosed with ADHD that did not to take ADHD medication to mitigate their ADHD symptoms. You are specifically being asked to participate because you match the specific criteria for this study. The intent of this research is to understand your views and experiences of school and how they shaped who you are today.

If you volunteer to participate in this research, you will participate in an initial interview lasting for approximately 30-60 minutes. Interview questions will range from, how you were diagnosed with ADHD to your school experiences and outcomes. Follow-up interviews will be collected following initial interviews and artifacts may be collected to support qualitative findings. Interviews will be audio-recorded with your permission. Your participation is voluntary and as such, you may withdraw from the study at any time without prejudice. Upon completion of both initial and follow-up interviews, you will be compensated \$50 for your time.

Questions

- 1.) Can you tell me about yourself?
 - a. Age, interests, line of work, etc.
- 2.) How did you find out you had ADHD?
 - a. What were your memories?
 - b. Who knew about your diagnosis at school and at home?
 - c. Where there other medical diagnosis present?
 - d. Can you tell me what they were and how they affected you?
- 3.) What role did your parents/guardians play after your diagnosis then and beyond?
 - a. Can you give specific examples?
 - b. Whose decision was it to choose alternative methods and why?
 - c. What motivated your parents to forego prescription medications?
 - d. How did you feel about your family's knowledge and support?
 - e. Did you and your parents differ in your feelings about medication and/or other treatment options?
- 4.) What was it like living with ADHD growing up (elementary, middle, high school)?
 - a. Can you give examples?
 - b. What were your peer and adult interactions like?
 - c. What were their reactions to your ADHD diagnosis?
 - d. What were the reactions, knowledge, and support from your teachers?
 - e. Who were your friends and did they know about your diagnosis?

- 5.) What school-related factors helped you stay focused in school and why?
 - a. What strategies, if any, did you use to control your symptoms?
 - b. What type of assistance did you receive at school to control your symptoms?
- 6.) If you could change anything about your school experiences, what would you do differently?
 - a. If you had a child diagnosed with ADHD would you do anything different?
- 7.) Is there anything else you would like to add about your school experiences and outcomes as a student diagnosed with ADHD?

APPENDIX D: FOLLOW-UP INTERVIEW PROTOCOL

Thank you for participating in initial interviews and agreeing to conduct follow-up interviews. After reviewing the initial interview questions, follow-up questions will be asked in response to:

- If the participant remembers the process of ADHD diagnosis.
- If the participant felt like he/she could have had other mental disorders.
- If other people knew about the ADHD diagnosis that were not specified in the initial interview.
- If other school officials like the counselor, administration, or other staff members supported or did not support the participant in elementary, middle, and high school. What were these experience like (positive and negative)?
- The recollections of what peers and family members said about the ADHD diagnosis.
- How the perceptions of self with ADHD changed over time.
- Knowing all of the available options to treat ADHD symptoms.
- If each participant has anything else to share.

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