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Parental Perceptions on the Impact of ADHD Medication Regarding Children's Inappropriate Behavior and Academic Performance

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Abstract

Centers for Disease Control and Prevention (2014) suggested that parenting a healthy child brings about a variety of challenges throughout life, however parenting a child diagnosed with Attention Deficit Hyperactive Disorder (ADHD) proves a daunting task inundated with unanswered questions and multitudes of stressful situations. The purpose of this research is to study parent perceptions of a child's ADHD medication to determine if a relationship exists between the ADHD medication, inappropriate behavior and academic performance. The quantitative survey instrument provided the means to examine the significance of the child's ADHD medication on one day of the parent's choice within the last six months before and after medication. The parents of ADHD children were asked to rate their child's ADHD symptoms regarding inappropriate behavior and academic performance before and after medication. According to the American Academy of Pediatrics (2011), Attention-Deficit Hyperactivity Disorder (ADHD) is the most common neurobehavioral disorder of childhood and can overwhelmingly affect the social and emotional well-being and academic achievement of a child. Statistics regarding the dominance of treating elementary children with ADHD medication continues to be relevant in research. Most of the literature has explored the obstacles educators face when dealing with children who take or do not take ADHD medication consistently. However, there is not much literature regarding parent perceptions of an ADHD child and the effects on inappropriate behavior and academic performance. Results from this quantitative descriptive study were developed using two-way cross tabulation analysis and revealed a statistical significant difference between the ADHD medication and improved inappropriate behavior. In addition, the parent perceptions of the relationship between the child's ADHD

medication and improved academic performance revealed a statistical difference in the problematic, somewhat problematic categories.

Keywords: Attention Deficit Hyperactivity Disorder (ADHD), behavioral therapy, Individual Education Plan (IEP), perception, stimulant medication

Dedication

I would like to dedicate this journey to my Savior, Jesus Christ, who I give all my glory and honor to. Luke 1:37, "For nothing will be impossible with God." I also dedicate this journey to my precious Mom, who is my rock and has guided and supported me throughout my life; without your constant reminders that I can accomplish anything I put my mind to, this endeavor would have never been possible. To my sister, Stacey, and my niece, Alexandra, thank you for the countless weekends you came to stay with me to puppy sit and the stress relief we enjoyed, as well as the thousands of motivating text messages and phone calls. To my Dad and my brother, Philip, both men of few words, thank you for your unwavering support. To my Granny, thank you for the many conversations we have enjoyed these past four years when I needed to take a break from my research and just hear about your day and how much you love me. To my precious puppies: Lucy, Bella, Simon, Champ, Baby Girl, and Lil' Bit, thank you for all of your unconditional love you have given me while I typed with one hand and rubbed your bellies with the other. Gracías! Mi Amor (Agustin), I will forever be grateful for all of the love, care and delicious meals you have provided for me. I could not have accomplished this journey without your relentless support and encouragement. From the bottom of my heart, I love you all dearly and am blessed immensely to have you in my life!

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Chapter 1: Introduction

Introduction to the Problem

Parenting a healthy child brings about a variety of challenges throughout life, however parenting a child diagnosed with Attention Deficit Hyperactive Disorder (ADHD) proves a daunting task inundated with unanswered questions and multitudes of stressful situations (Centers for Disease Control and Prevention, 2014). Parents often wonder if medicating a child with ADHD is the most effective strategy to accommodate the child's academic, behavioral, and social needs. Parents may feel guilty and responsible for their child's disability and unsure what method of treatment is best for their child. According to the American Academy of Pediatrics (2011), Attention-Deficit Hyperactivity Disorder (ADHD) is the most common neurobehavioral disorder of childhood and can overwhelmingly affect the social and emotional well-being and academic achievement of a child. In addition, the American Academy of Pediatrics (2011) published clinical recommendations for the diagnosis and evaluation of ADHD in children 2000, while initial treatment recommendations were published in 2001.

According to the Center for Disease Control's (CDC) latest Vital Signs report in May, 2016 at least 5 million young children between 2—5 years of age each year are insured by Medicaid (2008-2011). Fifty-four percent of the children were insured by Medicaid and 45% were insured by Employer Sponsored Insurance (ESI, 2011). These children receive psychological services annually, which may include behavior therapy training for parents. During the study, it was determined that the total percentage of children with ADHD receiving psychological services may receive behavior therapy.

There are many cases of ADHD reported annually. Universal occurrence rates center around 5% and range from 1% to 20% among school-age children (Faraone, Sergeant, Gillberg, & Biederman, 2003; Polanczyk, de Lima, Horta, Biederman, & Rohde, 2007). ADHD is a cognitive condition that impacts male and female children of all cultures, children with affluent backgrounds, as well as children living in poverty (Centers for Disease Control and Prevention, 2014). According to the Kennedy Krieger Institute (2012), the warning signs of ADHD may be evident in children as early as three and six years of age. Fifty percent of children diagnosed with ADHD were diagnosed between the ages of four and six based on the severity of their condition (Centers for Disease Control and Prevention, 2014). Approximately 6.4 million ADHD students ranging from the ages of four and 17 live in the United States and more than half of the children are under doctors' care (Schwarz & Cohen, 2013). As of 2014, 69% of children diagnosed with ADHD were seeking medical care (Centers for Disease Control and Prevention, (2014).

Background, Context, History, Conceptual Framework of the Problem

As of 2016, a limited number of published studies on ADHD parental perceptions were published. Healy (2013) suggested parents continue to reach out for support, but educators remain afraid to discuss ADHD with parents for fear of a lawsuit. Educators do not have legal rights to diagnose students. Available research examines the efficacy of ADHD training programs (Barbaresi & Olsen, 1998) and ADHD as a disability. According to the literature reviewed, a low number of studies exists compared to the number of children diagnosed with ADHD.

ADHD diagnosis increased over the past 10 years with approximately 4.4 million children meeting the criteria. However, only 2.5 million or 32%–56% of children were treated

for their disability. According to Eubig, Aguiar, and Schantz (2010), "Environmental trauma due to polychlorinated biphenyl (PCB) compounds, children of mothers who smoke, or children who have experienced brain trauma are reasons ADHD is more prevalent" (p. 1659). Healy (2013) suggested under-diagnosed ADHD cases are found with students who are intellectually gifted, students already receiving special education services, young girls, African American, and Hispanic minorities.

Early intervention is needed for ADHD treatment since issues in preschool tend to be predictors for problems later in life (Davis, 2011). Evans, Owens, and Bunford (2017) suggested that children diagnosed with ADHD portray several inappropriate behaviors for the age level. According to Evans, Owens, and Bunford (2017), some of the inappropriate behaviors related to ADHD are: inattention which includes difficulty focusing, easily distracted, disorganized, and forgetful, while also exhibiting hyperactivity, and impulsive actions. Teachers or parents of K–2nd grade students may observe characteristics of a child struggling with ADHD. Therefore, it is imperative that parents and teachers provide developmentally appropriate support and supervision for children with ADHD (Newswire, 2016). Realistic expectations should be set with a focus on maximizing behavioral strategies. Newswire (2016) suggested that it is also key to develop a positive relationship with the ADHD child.

Statement of the Problem

According to Davis (2011), ADHD and the effects of prescribed therapies on a child's inappropriate behavior and academic performance brought attention to the medical and educational world due to prescribed ADHD medications. The parent's choice of treatment often includes the administration of stimulant or non-stimulant medications. According to

Ziegler (2011), 70%–80% of medication treatments available positively impact the ADHD child. A child's areas of improvement when medicated include: inattention, impulsivity, ability to stay on task, and complying with rules (Ziegler, 2011). According to Barkley (2014), science proved ADHD medication to be beneficial which is why it was approved by the FDA; however, this research study will focus on parent perceptions. The research findings from this study will add to the literature by exploring the parents' perceptions concerning how ADHD medication affects inappropriate behavior and academic performance.

Significance of the Problem

Although ADHD and medication are prevalent in children, little research on parent perceptions of the effects of ADHD medication is available. Davis (2011) suggested that parents are pivotal in making decisions for their children medically and in education. There are few opportunities for parents to express their perceptions on their child's prognosis and the provided medications. Educators and doctors rely on parents to provide vital information concerning what is best for a child. In order to determine parent's perceptions of how ADHD medication affects their ADHD child in relation to the child's inappropriate behavior and academic performance, this study will utilize a parent survey. Researching this topic is critical due to the number of children prescribed medication for ADHD and the minimal literature available for parents to better understand its effects. This information will benefit future parents and educators of ADHD children. This study will add to the available research concerning parents' perceptions of how ADHD medication affects a child's behavior and academic performance; in addition, it may help parents make more informed decisions regarding ADHD medication for their child. The information will provide parents with

current data related to ADHD medication in relation to improved inappropriate behavior and academic performance.

Purpose of the Study

The purpose of this quantitative descriptive study was to determine the perceptions of parents in regards to the ADHD child's inappropriate behavior and academic performance before and after taking medication. The study determined how parents perceived ADHD medication assisted their ADHD child in relation to inappropriate behavior and academic performance.

A quantitative descriptive study was utilized to support the research by helping justify it (Maxwell, 2005). Quantitative research is defined by Bryman and Bell (2005) as "entailing the collection of numerical data and exhibiting the view of relationships between theory and research as deductive, a predilection for natural science approach, and as having an objectivist conception of social reality" (p. 154). Bryman and Bell (2005) suggested, "Quantitative research methods describe and measure the level of occurrences on the basis of numbers and calculations. Moreover, the questions of "how many?" and "how often?" are often asked in quantitative studies" (p. 154).

This study attempted to compare parent perceptions of two rural lower socioeconomic elementary schools in Alabama. By examining parent perceptions, educators will make sound decisions on how to support medicated children diagnosed with ADHD within the elementary school setting. Additionally, the researcher hoped to determine if parents of children with ADHD supported the use of medication to improve inappropriate behavior and academic performance. Increasing the level of support of medicated ADHD students based on parental perceptions provided more educational opportunities within the general education setting.

Research Questions

The following research questions served as the focus of this study:

Overarching Research Question: What relationship exists between parent perceptions of the ADHD child and the effects of ADHD medication on the child's inappropriate behavior and academic performance?

Q1. To what extent, if any, is there a difference in parent perceptions of the ADHD child's inappropriate behavior before and after ADHD medication?

Q2. To what extent, if any, is there a difference in parent perceptions of the ADHD child's academic performance before and after ADHD medication?

Hypotheses

The following hypotheses correspond to the research questions. The hypotheses are:

$H1_o$. There is a statistically significant difference in parent perceptions of the ADHD child's inappropriate behavior before and after ADHD medication.

$H1_a$. There is no statistically significant difference in parent perceptions of the ADHD child's inappropriate behavior before and after ADHD medication

$H2_o$. There is a statistically significant difference in parent perceptions of the ADHD child's academic performance before and after ADHD medication.

$H2_a$. There is no statistically significant difference in parent perceptions of the ADHD child's academic performance before and after ADHD medication.

Definition of Terms

For the purpose of this study, the following definitions are used:

Attention deficit hyperactivity disorder. Attention deficit hyperactivity disorder (ADHD) is a neurodevelopmental disorder characterized by a pattern of inattentive, hyperactive,

and/or impulsive behaviors that occur across settings such as home and school. This definition is derived from the most widely accepted classification system of mental disorders known as the Diagnostic and Statistical Manual of Mental Disorders, 5th ed.; DSM–5 (APA, 2013).

Behavioral therapy for attention deficit hyperactivity disorder. A behavioral intervention is a systematic and intentional effort to help a child learn to change his behavior. (Loe & Feldman, 2007).

Individual Education Plan (IEP). "Individually written documentation for a child with a disability; includes statements of present performance, annual goals, short-term instructional objectives, specific educational services needed, relevant dates, regular education program participation, and evaluation procedures; must be signed by parents as well as educational personnel" (Heward & Orlansky, 1992, pp. GL–8).

Perception. "The process by which meaning or interpretation is attached to experiences" (Eggen & Kauchak, 1992, pp. G–10).

Stimulant medication. Medication prescribed by a medical doctor for the purpose of controlling ADHD. (Berman, Kuczenski, McCracken, & London, 2008)

Assumptions, Delimitations, and Limitations

The three assumptions of this research study are:

1. Parent participants will read the contents within the surveys and will answer questions honestly concerning ADHD and the effects of medicine on inappropriate behavior and academic performance.
2. The quantitative method of gathering data could help educators and administrators gather information concerning parent perceptions of ADHD and the effects of medicine on inappropriate behavior and academic performance.

3. The researcher will distribute a parent survey (via the school nurses), collect and analyze data, without bias in order to reach sound conclusions from the study.

This study restricts itself to a parent survey within two rural lower socioeconomic elementary schools in Alabama. This is considered a delimitation because data will only be collected from two schools. The study delved into the perceptions of parents of children diagnosed with ADHD who live in rural areas of Alabama with limited resources. The researcher selected parent participants using purposeful selection, which Kilbourn (2006) claimed narrows the generalization of any researcher's findings. Measuring parent opinions regarding ADHD and ADHD medication may not yield accurate results because parent participants may lack proper training on how to deal with an ADHD child. In addition, parents may have different opinions and perceptions on ADHD and ADHD medication, and may also feel the need to protect their child.

Additionally, the researcher was a reading coach at one of the participating elementary schools. Since the study took place at the researcher's school, perceptions of parent participants were possibly jeopardized. Even though the study was confidential and anonymity of the parent participants was maintained, concern remains that parent participants were not comfortable answering the survey honestly, because the researcher is employed at the school.

Summary

There is limited research on the topic of parental perceptions of ADHD medication and its effect on a child's inappropriate behavior and academic performance. The majority of literature focuses on doctors and educator's opinions on the effects of ADHD medication in relation to inappropriate behavior and academic performance. Barkley (2014) suggested that the effects on overt behavior are larger than the effects on cognitive thinking and academic

performance. However, the effects on cognitive thinking and academic performance do show improvement, just not as large as the improvement on behavior. Parents, educators, and doctors continue to examine updated research to better support the ADHD child who is prescribed the ADHD medication. Due to many misconceptions concerning ADHD medication, this research study provides raw data from parents of ADHD children who live in poverty and rural areas. In chapter I, this topic was introduced and defined as a need for more conducive research. In addition, the purpose of the study, research questions, and assumptions were presented.

Chapter 2: Literature Review

Introduction to the Literature Review

In order to conduct research to determine a parent's perceptions of an Attention Deficit Hyperactive Disorder (ADHD) child's inappropriate social and academic behavior before and after medication, the following medical, educational, and psychological databases were utilized: ERIC, ProQuest, PsycINFO, Google Scholar, Ebscohost, and JSTOR; as well as numerous peer reviewed articles on ADHD. To obtain the data that appear in this literature review, the following terms were used in the search: ADHD and Classroom Management, Attention Deficit Hyperactivity Disorder, ADHD students and success in school, Medications and strategies to accommodate ADHD, Challenges associated with academic and behavior of students with ADHD, Racial and ethnic differences in ADHD children, Medicines prescribed for ADHD children, and Parent perceptions of ADHD medicine.

In addition, relevant journal articles relating to ADHD published in recent decades were reviewed. Since 1994, seventeen studies worldwide attempted to assess ADHD in students and classroom success. The lack of available research on parental perceptions of ADHD medication and the effects on an ADHD child's inappropriate behavior and academic performance supports the need for increased research.

Conceptual Framework

Ravitch and Riggan (2012) stated that a researcher develops his framework conceptually when he determines what to study and the extent as to why it matters to them personally, and by the development of reasonable conclusions on how to go about studying his topic. According to Lemer (2013), Maslow's theory focused on a child's basic physiological needs being met before cognitive needs are met. Consequences of basic needs that are unmet are witnessed daily in the

struggles children face with ADHD. Lemer (2013) also stated Maslow believed that a child's needs for safety, security, and knowledge should be addressed only after the basic needs are met. Unfortunately, in today's schools, teachers put acquisition of knowledge first.

An alternate approach to address inappropriate or problematic behaviors is to search for the underlying needs that drive them. Children with ADHD who experience conflict in their personal, social, emotional, and academics are at risk for problems associated with focus. Although, the school's primary concern is education, positive mental health is a key to successful education, emotional health, and developmental outcomes, which impact the student's overall health and welfare. According to Perry (n.d.), "The hungry child, the ill, tired, confused, or fearful child does not care about new things — they want familiar, comforting, and safe things. A sense of safety comes from consistent, attentive, nurturing, and sensitive attention to each child's needs" (p. 1). Hawthorne (2010) suggested preparation is needed for teachers and parents regarding the analysis and management of ADHD. Fundamentally, schools should participate in meeting the mental health needs of anxious children who lack social skills and possess the burden of mental health needs and ensuring parental communication. Comstock (2011) suggested the social control thesis is challenging, and children have little to say in their diagnosis, however, medication is frequently used for the purposes of overt social control.

Educators and parents have debated for decades as to ways to educate children diagnosed with ADHD. IDEA ensures all students with disabilities are afforded a free and public education (FAPE), one tailored to their individual needs (U.S. Department of Education, 2014). Recent educational trends dictate for all students to be mainstreamed into general education classrooms as these are deemed beneficial educational placement. Parents, students, and educators disagree with this placement for students diagnosed with ADHD. ADHD affects each child differently

and at times students require more specialized attention than others (U.S. Department of Education, 2014).

The conceptual framework of this study was based on the researcher's interest in determining how parents of ADHD children feel the medication supports the child in improving their inappropriate behavior and academic performance. According to Graham (2008), research concerning ADHD medication relates to the symptomology and side effects, as well as doctor and teacher perceptions. There is little research available concerning how parents perceive the medication. Therefore, this research topic grew from the concept that more research is needed and should be made available to parents interested in the effects of ADHD medication on inappropriate behaviors and academic performance.

Another topic related to ADHD students is Inclusion. The Inclusion classroom is a popular trend where students with various disabilities are placed in general education classrooms, however, research shows that children diagnosed with ADHD are not as successful in inclusion classrooms versus a self-contained classroom (Kauffman, Ward, & Badar, 2016). Marshall and Goodall (2015) pointed out that ADHD children benefit from the social and educational interaction offered in general education classrooms, but at times, ADHD students experience bullying due to their misbehavior. Parents are often torn between making the best decision not only for the child in relation to how best to treat the ADHD child, but also in collaborating with educators to determine what school setting is best for the child's least restrictive environment (LRE) (Marshall & Goodall, 2015).

Review of Literature

According to Scuitto (2016), the most prevalent disorders of childhood and adolescent ADHD children are: acting on impulse, having difficulty maintaining adequate behavior, exhibiting violence within the classroom, or even speaking out of turn (Burke, 2008). Each of these identified inappropriate behavioral characteristics affects the social and academic well-being of the ADHD child. Students are often reprimanded by parents, teachers, or school administrators when these behaviors occur (DuPaul & White, 2006).

Definition of ADHD

ADHD consists of three main symptoms. The first symptom of ADHD is inattention. Schweitzer, Cummins, and Kant (2001) described inattention as a psychiatric disorder, which includes complications with attention and organization of behavior. Attention deficit hyperactivity disorder impacts young children in the social and academic learning environment. Children demonstrating a lack of attention find it challenging to remain focused when given oral directions. Children who are inattentive experience difficulty remembering their next steps and often become irresponsible with their belongings. Inattentive children can become readily distraught. Along with these challenges, children with ADHD often lack specific details in assignments (Schweitzer, Cummins, & Kant, 2001). Challenges associated with inattentiveness can prevent the ADHD child from experiencing academic success.

The second symptom associated with ADHD is hyperactivity. Hyperactivity is defined in an individual that is always on the go, fidgeting, and exhibiting distractibility (American Psychiatric Association, 2013; Centers for Disease Control, 2014). Students demonstrating hyperactivity frequently wiggle and twist. They cannot sit still. Hyperactivity within the learning environment can cause academic issues. This may be observed as children who do not

listen in class. The student may not hear the directions. Daley and Birchwood (2010) suggested the ADHD child often exhibits difficulty taking turns, talks excessively, often appears not to be listening when spoken to, and tends to interrupt during conversations and classroom discussions. Therefore, the student may complete the assignment incorrectly or not at all. Secondly, if the student is overactive, they miss out on a teacher's expectations for an assignment, therefore resulting in an unsatisfactory score. Essentially, these students require support with behavior.

Impulsivity is a third behavioral symptom which impacts children diagnosed with ADHD. Impulsive behavior is described as an act without forethought and is a component of frequent psychiatric illnesses including attention deficit and hyperactivity disorder (ADHD), mania and substance abuse (Winstanley, Eagle, & Robbins, 2006). DuPaul and White (2006) suggested that students who demonstrate impulsive behavior toward peers could cause strain on maintaining friendships. The number of students in schools who are diagnosed with ADHD continues to rise yearly and their treatment varies. Consequently, the situations a child is exposed to and these principles are invaluable to improving ADHD symptoms and express a need for continued research in this area. In addition, children with ADHD are frequently unorganized and forgetful, which causes frustration for the child and parent. ADHD children require a specific schedule, explicit details in simple directions, and possess a need for consistency in daily life (DuPaul & White, 2006).

Prevalence of ADHD in Children

While childhood ADHD is more prevalent in the United States than other countries, one gender is also affected more than the other is. Research indicates that male students are currently diagnosed three times more when compared to female students (Barkley, 2013). According to Mahone (2012), in 2011, the CDC estimated nearly 9% of children in the U.S. (1

out of 11 children between the ages of 5 and 17) were diagnosed with ADHD; the diagnosis is made in approximately twice as many boys than girls. Mahone (2012) discovered that prevalence in female students is increasing rapidly. Rates show that the 8.7% developmental onset of ADHD in females appears later in girls than boys, which explains why more adult females exhibit ADHD characteristics than young girls. Girls demonstrate less noticeable behaviors such as an inadequate attention span, forgetfulness, and the inability to complete tasks. ADHD impacts 9.8% of European Americans, 9.5% of African Americans, and 5.5% of Hispanic children (Sattler, 2014).

Richard Scheffler conducted a national survey of ADHD medicated and non-medicated students. Scheffler's (2009) study did not identify the cause of ADHD, but it appears to be linked to heredity and is incurable, yet treatable (American Academy of Child Adolescent Psychiatry, 2013). According to Boyles (2009), ADHD children who are medicated usually perform better on math and reading standardized tests compared to peers also diagnosed with ADHD, but do not take medication. Fontana (2013) suggested medicating ADHD children continues to be a contradicting issue due to physicians prescribing psychotropic medications without the proper diagnosis and the high number of children on ADHD medication, therefore more research on the topic is needed.

Treatment of ADHD

There are two main approaches for treating ADHD and a third, which is not as prevalent. One approach in which children receive support for ADHD is through medication , the second approach is psychotherapy, and the third approach is Cognitive Behavior Therapy (CBT) (Loe & Feldman, 2007). A variety of stimulant and non-stimulant medications are utilized in order to treat children with ADHD. Stimulants are recognized as drugs used to aid

individuals with ADHD by limiting negative behaviors during a short timeframe (Hinshaw & Ellison, 2015). Some of the commonly used stimulants are Methylphenidate, Amphetamines, Dexmethylphenidate, and Dextroamphetamine (Daughton & Kratochvil, 2009). Methylphenidate stimulants are known by the names of: Ritalin, Concerta, Metadate, and Focalin. An Amphetamine stimulant used is Adderall (Hinshaw & Ellison, 2015). Dexmethylphenidate stimulants are Focalin and Focalin Rx. Dexedrine and Dexedrine Spansules are medications identified by the name Dextroamphetamine. These stimulants are known to decrease ADHD symptoms in children, yet they can produce side effects (Berman, Kuczenski, McCracken, & London, 2008). Side effects may include lethargy, lack of appetite, deferred development, headaches and stomach aches, gloominess, grouchiness, and twitching (Boorady, 2014).

Non-stimulants are described as pharmaceuticals that are used to "improve mental focus without producing side effects that warrant stopping the medication" (Hallowell & Ratey, 2005, p. 18). In general, non-stimulant drugs are used after stimulant substances are found not to be beneficial (Smith, Robinson, & Segal, 2015). A few commonly prescribed non-stimulants for children with ADHD are "Straterra, Intuniv, and Kapvay" (American Academy of Child & Adolescent Psychiatry, 2013, p. 17). Other non-stimulant medications are Catapres and Tenex (Daughton & Kratochvil, 2009). Possible side effects linked to non-stimulant drugs include lethargy, tension, exhaustion, and indigestion (Oelke, 2005).

Daughton and Kratochvil, (2009) suggested the advantages associated with pharmaceuticals are that stimulant medications possess all-encompassing databank supportive of the student's well-being, vigorous usefulness, and quick inception. A second advantage is that 30 minutes after absorption, a vast change appears to occur within the overall behavior of

children with ADHD (Kratochvil & Daughton, 2009). Due to the impact, medication has on the ADHD student, behavior issues are known to decrease (Powers et al., 2008). Stimulants indicated as possessing extended affects can potentially reduce the amount of medication needing to be absorbed each day (Kratochvil & Daughton, 2009).

Heath, Curtis, Fan and McPherson (2015) suggested another treatment option, which encompasses educating the parent and child through behavior management therapy. In addition, the parent and child may attend a variety of training sessions such as self-control therapy and communication therapy. Ongoing research continues to be quite controversial. The controversy lies in the decision of the parent as to what type of treatment will be prescribed. When a child is medicated for ADHD, the medicine affects the child's experience, while the experience affects the maturation of the brain. According to Heath, Curtis, Fan, and McPherson (2015), the primary role in behavior therapy is for parents to learn strategies to promote behavior change. Ultimately, the parent makes the final decision to give prescribed ADHD medication to the ADHD child, while behavior therapy serves as an alternative treatment.

Disadvantages of ADHD Treatment

A disadvantage associated with prescribing pharmaceutical medication is consistency. Medications prescribed to be taken several times daily affects the consistency due to its decreased duration (Kratochvil & Daughton, 2009). Another disadvantage is the high costs associated with prescribed ADHD medication. In addition, stimulants can delay the maturation of cartilage tissue, which can impact the maturation of the bones. Stimulants can also limit a child’s appetite and impede their growth (Goldman, 2010). Furthermore, it is suggested that children with ADHD may require special education services more than their classroom peers (Loe & Feldman, 2007).

Parents of ADHD Children

Providing for an ADHD child can be stressful for the parents and other family members. Parents often feel guilty for disciplining the ADHD child due to the amount of stress associated with the disorder. According to Hayes and Watson (2013), researchers determined that parents experience increased stress when the child's disability involves severe deficits in Executive Functioning, such as with ADHD or Autism Spectrum Disorder (ASD), as opposed to other disabilities. Other disabilities would include Down syndrome or intellectual disability. Often, parents do not possess the skills to understand behaviors associated with an ADHD child. However, doctors and counselors provide training sessions and small groups to allow parents to learn how to help the ADHD child.

Kam (2016) suggested tips for raising an ADHD child. Kam (2016) suggested ADHD parents should not use the disability as an excuse for other behaviors not associated with ADHD, being honest with the child about the disability, consistency of discipline while speaking calmly, helping the ADHD child to discover his or her strengths and not overprotecting the ADHD child. The ultimate goal of a parent of an ADHD child is to teach the child to learn how to solve problems based on the issue at hand (Kam, 2016). Parents often do not receive the proper techniques or training needed to truly understand their child's disability. Zeigler (2011) suggested parents learn to understand the characteristics associated with the ADHD child. Parents should understand that following rules and procedures is difficult for the ADHD child. A parent should check for understanding of given directions, provide consistent rules and procedures, and praise the child for their efforts. ADHD children should be included in creating the rules and procedures the child is expected to follow in order to establish ownership. It is vital to understand the complex neuro-developmental disorder of

the ADHD child. Zeigler (2011) stated that most ADHD children possess a 3 year or 30% delay, which suggests on grade level challenging work is difficult for them to complete due to a decrease in brain chemistry. Zeigler (2011) stated that 69% of ADHD children also have coexisting conditions with 50% exhibiting a third condition such as SLD, anxiety, depression, Bi-polar, Obsessive Compulsive Disorder (ODD), substance abuse, and impaired sleep. Zeigler (2016) also noted that ADHD is a genetic disorder.

ADHD behaviors can also impact the parent-child relationship. Parents benefit from incorporating a structured time within each day to allow the ADHD child to be successful. Pew Research Center (2015) suggested, to support the ADHD child, parents should communicate frequently in a positive manner, share the power to decrease arguments, and spend quality time during meals, while also participating in family activities. The more positive the relationship is between the ADHD child and the parent; the more positive family experiences will be. Pew Research Center (2015) stated collaboration between the child is key to improving the relationship between the parent and child. Including the child in the treatment plan, accommodations, and decisions regarding their ADHD prognosis also improves the relationship between the child and parent.

According to the Pew Research Center (2015), parents tend to ask family members and close friends for guidance and support rather than consulting with professionals who specialize in ADHD treatment. One reason is because the parent has not created a trusting relationship with the professional and the parent feels they know their child best. A parent may be more apt to seek help when the professional actively listens and takes time to discuss their child's ADHD issues, creates a positive trusting relationship with the professional, and the professional validates the parent’s concerns and shows interest in the family's situation

(Sayal, Ford & Goodman, 2010). Most research supports combined therapy where the child takes medication and the parent and child participate in therapy.

Resources Available for ADHD Children

According to U.S. Department of Education officials (Osinki, 2016), the Office of Civil Rights received an excess of over 16,000 complaints from 2011–2016 regarding discrimination due to a disability in elementary or secondary educational platforms. The U.S. Department of Education presented a guidance letter in July of 2016, reporting that more than 10 % of the complaints involved "allegations of discrimination against students with ADHD" (p. 2). The department's purpose in writing the letter was to clarify any misunderstandings of guidelines related to ADHD students and their rights and responsibilities. The letter reiterated that schools must evaluate a student if they are believed to need special education or similar services. New guidelines require educators to conduct an evaluation to determine if a student is in need of academic and/or behavioral support.

Today, special education and students with disabilities are reaping the benefits of many advocates that fought for enhanced educational opportunities. Students meeting the Individuals with Disabilities Act (IDEA) qualifications are afforded an education that provides them with knowledge in life skills (Osborne & Russo, 2014). Special education students within the United States are receiving remedial instruction based upon an individualized education program established in order to assist students in meeting their academic goals (Bates, 2017). The Individuals with Disabilities Act (IDEA) of 1990 has brought about change as to how individuals with physical and mental disabilities are being served with regards to education.

Prior to the implementation of IDEA, students with special needs received little or no assistance (Terman, Larner, Stevenson, & Behrman, 1996). In the United States during the 1970s, only children with a critical disability was provided educational services for the purpose of meeting their learning needs. IDEA proved to be effective in meeting the needs of all disabled children. Students receiving services under IDEA must meet specific requirements to be eligible for services. According to Bates (2017), under the law of IDEA children "must have a physical or mental impairment that affects their academic performance or major life activity" (p. 4). Although special needs children remain disabled throughout their lives, IDEA provides them with a sense of independence (Bates, 2017).

The No Child Left Behind Act (NCLB) originated under the leadership of President Bush in 2001 and was signed into law on January 8, 2002 (Hess & Petrilli, 2006). President Bush and other stakeholders realized disadvantaged children were not receiving the same fair and equal educational rights as the more prominent students. In addition, there was a need to hold educators more accountable while ensuring that regardless of a student's socioeconomic background, he or she should receive equal educational opportunities as their peers (Hess & Petrilli, 2006).

Between 2001 and 2004, the No Child Left Behind Act (NCLBA) not only ensured parents that educators would be held to a higher standard, but also provided children with special needs more educational resources (Cortiella, 2006). In addition, the No Child Left Behind Act also required that educational institutions, states, and school districts provide all students with the knowledge needed to excel in the areas of reading and math by 2014 (United States, 2007). Furthermore, the No Child Left Behind Act provided children,

teachers, parents, and leadership with an abundance of security and educational opportunities to perform successfully in the learning environment.

In order to teach ADHD children, it is critical the teacher understands the characteristics associated with this condition. Although ADHD can impact male students differently than female students, both genders may at times demonstrate similar behaviors. Behaviors that are affiliated with ADHD are blurting out, fidgeting, becoming disruptive, mood swings, and the inability to keep up with their belongings (Lougy & Rosenthal, 2002). Secondly, the teacher and parents must establish an open line of communication in order to better assist the students (Rief, 2012).

Synthesis of Research Findings

The literature suggested although ADHD is a common neurobiological behavioral disorder; it can impact children from all cultures, economic backgrounds, as well as gender (Nikander, 2015). This condition appears to be more prevalent in children coming from less affluent backgrounds. The literature implied that American students living in the United States and coming from destitute backgrounds are more apt to be diagnosed than European Americans with similar socioeconomic status (Oman, 2014). ADHD is more noticeable in male students than female students due to the difference in behaviors (Quinn & Madhoo, 2014). Although available research asserted that male students demonstrate behaviors that are associated with inappropriate verbal responses, ADHD can be more prevalent with female students. Due to girls demonstrating calmer behaviors than boys, it can become more difficult for the teacher and parents to recognize. Furthermore, this research describes students with ADHD as possessing the capabilities to perform as successful as classroom peers, but lacking of self-control.

On average, ADHD students can receive their education in the general classroom (Reid & Johnson, 2011). It is due to inappropriate and negative behavior that some are retained, suspended, or expelled (Reid, & Johnson, 2012). The literature explained that due to negative behavior, they find it difficult to stay focused, remaining in the classroom, and therefore cannot learn what is required. Martinussen, Tannock, and Chaban (2011) suggested in order to limit the number of behavioral referrals for ADHD students and support the academic, behavioral, and social needs, teachers should receive more professional development training.

Once teachers receive adequate training to support the learning needs of students, they can collaborate with faculty, parents, and administrators to establish strategies to support students with ADHD (Christenson, & Sheridan, 2001). By collaborating, teachers have the ability to make recommendations on how to meet the needs of children with ADHD, based on prior knowledge and training. Research suggests that students with ADHD receiving specified interventions tend to perform more successfully. Research for this study contends that even though ADHD can impact individuals academically and socially during their youth, it also plays a notable role in their lives as adults. ADHD can prevent individuals from earning a high school diploma, maintaining a career, abiding by the law, retaining a positive social environment, and becoming financially stable (Appalachia Laboratory, 2015). Furthermore, research provided descriptive characteristics of an individual diagnosed with ADHD. Descriptive characteristics associated with ADHD are the inability to remain attentive, over activity, and impulsivity (Merrell & Tymms, 2001).

Critique of Previous Research

Few studies have been conducted concerning parents' perceptions of ADHD children and prescribed medications. One research study cited clearly identified the association between academic and behavioral skills and students who struggle with completing assignments and staying on task (Farrington et al., 2012). Another study conducted in Illinois for the Consortium on Chicago School Research identified connections between ADHD symptoms affecting academics, behavior, and students with difficulty remaining focused in the classroom. The academic behaviors, attendance report, and grades of ADHD students were examined for identifying the association with under-achievement. Although other variables such as attendance and cultural backgrounds played a role in student failure, this study indicated academic behaviors were the central determination with regard to student achievement (Farrington et al., 2012).

A study conducted in Australia compared students with ADHD to non-ADHD students by demonstrating their personal best in academics (Martin, 2012). Goal constructs such as goal setting, goal orientations, and goal structures were examined by three different investigators. Due to lack of information pertaining to an individual's personal best, Martin examined what occurs when children with ADHD and non-ADHD students demonstrate their personal best in school academics (Martin, 2012). The investigator examined students with ADHD and non-ADHD on mathematical, flexible behavior exercises, excluding adaptive behavioral exercises. The findings concluded, "the pursuit of personal best goals appears to be a promising approach to promoting the academic potential of diverse groups of learners" (p. 103). Although there appeared to be a positive outcome, the researcher asserted limitations existed. Results found there was a need for a more extensive sample for

future studies in order to ensure that the focus groups would not vary (Martin, 2012). Weaknesses of various studies pertained to research employed by specific strategies for children with ADHD.

According to Hawthorne (2010), ADHD was originally perceived as a disorder of school-age children. ADHD became more prevalent and is also diagnosed in preschoolers and adults. The Diagnostic and Statistical Manual of Mental Disorders (DSM; American Psychiatric Association, 2000) subdivides ADHD into three types: inattentive, hyperactive or impulsive, and combined. To receive a diagnosis, a person must have six or more symptoms signaling inattention, six from the list for hyperactivity or impulsivity, or both, and the symptoms must impair the individual's functioning in two or more venues.

Due to an increase in the number of students taking medication for ADHD, controversies continue to arise. According to Purdie, Hattie, and Carroll (2002), "The efficacy of a range of interventions for attention deficit disorder is still a matter of lively debate, and there is growing concern over the increase in diagnosis, the rate of prescription of drugs, and the use of medication as the sole method of treatment" (p. 61). The most common treatment for ADHD is through the use of pharmaceutical medications. Clarke and Lang (2012) stated, "There was an increase in the diagnosis of ADHD of about 3% per year from 1997–2006. The use of pharmaceuticals for treatment has increased 12% per year since 2000 in the United States" (p. 250).

However, research is ongoing about a range of possible causal factors and potential treatments in all of the following areas: genetic, biological, social, moral, familial, and school related (Sax, Leonard, and Kautz, 2003). Hawthorne (2010) suggested, "Although there is a relative consensus that ADHD has a biological basis, scientists have not yet settled on a

model, or models, representing ADHD's underlying mechanism(s)" (p. 128). Another area of relative consensus is the efficacy of stimulant medication for short-term symptom control. Wolraich et al. (2016), suggested behavior management and therapy are also treatment strategies for those diagnosed with ADHD; however, it is not proven as effective as medications which contain a stimulant. Depending on the severity of the symptoms, some doctors prescribe a non-stimulant for children with ADHD.

According to The American Academy of Pediatrics (2016), the alternate form of non-medicated treatment is through Cognitive Behavior Therapy or behavior treatment (BT). Behavioral treatment (BT), especially classroom contingency management and parent training, is the other major modality used with hyperactive children. It is not known how frequently these approaches are implemented, however, and there are indications that practitioners report using behavior therapy more frequently than parents report receiving it (Wolraich et al., 2016). Cognitive Behavior Therapy (CBT) is neither as pervasive nor as scientifically justified as either a stimulant or behavioral treatment for ADHD. Cognitive-behavioral methods promise an extensive influence, allocating not only to decrease specific insufficiencies, but also to enrich motivation and improve problem-solving strategies and self-regulatory proficiency. "Despite these expectations, however, there has been no convincing evidence that CBT reliably enhances attentional, cognitive, or social competence" (Hawthorne, 2010, p. 130). The American Academy of Pediatrics (2016) recommends that before prescribing medicine to a young child, healthcare providers refer parents to training in behavior therapy. However, according to the Vital Signs (2016) report, about 75% of young children being treated received ADHD medicine, and only about half received any form of psychological services, which might include behavior therapy. The Vital Signs (2016) report

also states that the percentage of children with ADHD receiving psychological services has not increased over time.

According to Newswire (2016), during behavior therapy, a therapist trains the parents during eight or more sessions, includes learning strategies to encourage positive behavior, discourages negative behaviors, improves communication, and strengthens their relationship with the child. Behavior therapy regimens can be created by a variety of health professionals: a pediatrician, a school psychologist, or another mental health worker. Parents also receive training on how to give commands and ways to react when a child obeys or disobeys. According to Newswire (2016), when the parent implements the Behavior Therapy tactics, the child's social behavior, self-esteem, and self-control improve. Newswire (2016) also suggested there is an increased amount of time, effort, and resources required to learning and practicing behavior therapy rather than treating ADHD with medication. Investigations confirm it as a successful regimen for ADHD children.

ADHD in the School Setting

The core characteristics of ADHD can lead to a multitude of complications for students with ADHD in the school setting. These core characteristics of ADHD impact academic, behavioral, and social functioning of a child. Academically, students with ADHD underachieve compared to classroom peers. Behaviorally, ADHD students are described as those who act before they think, are impulsive, and are in constant motion (Walker, 2013). ADHD students are observed displaying difficulty paying attention, concentrating, following simple directives, and completing assignments (Walker, 2013). Often, they are disruptive in the class, and talk without permission. Socially, they become frustrated easily with peers and often are deemed loners. Studies show that students with ADHD demand more support from

their teacher than classroom peers. Although, ADHD affects students' behaviors within the classroom, according to the National Civil Right Law, it is unlawful to suspend a student more than 10 times per school year for exhibiting behaviors consistent with a diagnosis of ADHD (Office of Civil Rights, 2016). The principal and case manager of an ADHD student facing a 10-day or more suspension must hold an IEP review to determine whether the misconduct was a manifestation of the disability (Office of Civil Rights, 2016). According to Walker (2013), if misbehavior is determined, not an indicator of the disability and the suspension is enforced; the student must receive a free, appropriate public education, which can be provided in an alternate educational setting. In addition, students with ADHD are often taught by teachers who are not trained to accommodate social and emotional issues associated with the ADHD diagnosis. This may lead to more disciplinary actions and less academic success (Walker, 2013).

One of the six studies in the United States conducted in 2004 by Bekle showed 90% of teachers stated they worked with one or more students with ADHD in the classroom at any given time and 93% reported no formal instruction of teaching students with ADHD. Ninety-eight percent of the teachers expressed an interest in additional training. Bekle (2004) determined teachers' knowledge of ADHD improved after professional development training. Results indicated teacher knowledge improved with an increase in overall scores from 77% to 85%. Snider, Busch, and Arrowood (2003) conducted a study which assessed teachers' knowledge regarding treatment of ADHD, specifically concerning the use of stimulants. Overall, the teacher knowledge level was rated at 46%. Research by Vereb and Diperna (2004) showed overall knowledge of ADHD at 67%, which represented an increase when compared to past studies. Weyandt, Fulton, Schepman, Verdi, and Wilson (2009) investigated

teachers' and psychologists' knowledge of ADHD. The results supported previous studies that teachers appear to have limited knowledge of ADHD. In 2016, the number of students diagnosed with ADHD continued to rise; however, no official training for teachers was provided (Newswire, 2016). Teachers are still instructed not to interfere by suggesting the topic of ADHD to parents during conferences because ADHD requires a medical diagnosis.

Many students with ADHD are inclusive in the general education setting due in part to federal regulations, which specify that students are to be educated in the least restrictive environment (Office of Civil Rights, 2016). This ruling created a need for professional training for all teachers of ADHD students. In 1991, the Department of Education issued a policy regarding ADHD students stating that public schools must provide appropriate educational services to those identified with ADHD (Office of Civil Rights, 2016). The results of two separate studies in the Midwest confirmed a lack of or limited knowledge of ADHD with both special and general education teachers. The studies provided a call for teachers to receive training to amplify their understanding about ADHD. Bekle (2004) and Koller (2004) found that teachers do not effectively understand ADHD and its associated behaviors.

The Center for Disease Control (2010) suggested that 47% of school-age students have a mental health diagnosis requiring substantive mental health support in the classroom. Koller (2004) stated regular and special education teachers feel incapable and unqualified to recognize and intervene in mental health problems affecting students. Additionally, Bekle (2004) reported elementary education teachers possess a compelling aspiration for more information on ADHD, because this information is not normally offered in the school system.

Therefore, the unethical and immoral practicalities not to educate school personnel on this disorder are due because the school district may fear a lawsuit (Office of Civil Rights, 2016).

Chapter 2 Summary

The literature review provides a history of ADHD, as well as an overview of theory in relation to the phenomenon of ADHD. Based on the literature review, a gap exists between the professional data of the effects of medicated ADHD students and their success in school as well as effective strategies for teaching ADHD students. The literature review indicated that students with learning disabilities are protected under the Individuals with Disabilities Education Act (IDEA) (Altshuler & Kopels, 2003). Furthermore, students diagnosed with a learning disability such as ADHD may remain in the general education classroom. The student's classroom setting is determined by whether the student's behavior becomes too challenging and interferes with their ability to remain focused (Appalachia Educational Laboratory, 2015). In addition, although students diagnosed with ADHD are challenged academically, behaviorally, and socially, the disorder can affect each individual differently (Office of Civil Rights, 2016).

The literature review describes the meaning of ADHD, general learning environment, the effects of medication and behavior therapy as well as approaches to ADHD in the learning environment, parents of ADHD children, and strategies suggested by research to support students diagnosed with ADHD. Additionally, the literature review describes best practices for parent and teacher collaboration for students with ADHD. This study describes the influence medication and the involvement of the child's teacher has on academic, behavioral, and social skills of ADHD students. This chapter also describes the theoretical

foundation that explains successful instructional strategies, techniques, and processes for working with ADHD students.

Chapter 3: Methodology

The purpose of this chapter is to describe the methodology implemented to guide the research study. A description of the problem statement, purpose of the study, research questions, research design, population, sampling method, and data collection will be included. Additionally, this chapter will include more explicit information such as: expected findings, ethical issues, and a chapter summary.

A quantitative descriptive survey was implemented with this study to determine if a relationship exists between parent perceptions of the ADHD child's behavior and academic performance before and after ADHD medication. This survey included parents in the K–5 setting from a rural community in Alabama. Goldstein and Brooks (2007) reported that when parents provided specific behavioral interventions to students coping with challenging behaviors they tended to perform better academically. The researcher did not locate studies with similar methodology and variables but remained eager to explore perceptions of parents concerning how ADHD medication affects the ADHD child's behavior and academic performance.

Statement of the Problem

A gap exists in literature regarding what parents perceive as advantageous for elementary teachers who teach ADHD students. In addition, there is little research available determining parents' perceptions on the success of ADHD children who are receiving medication. The researcher attempted to determine parents' perceptions of the ADHD child, the prescribed medication, and the effects the medication on the child's inappropriate behavior and academic performance. According to Singh (2014), science proved ADHD medication beneficial and was approved by the FDA. This research study focused on parent perceptions on the effects of ADHD medication on the ADHD child. Research findings from this study

will add to the available literature by exploring parent perceptions concerning how ADHD medication affects inappropriate behavior and academic performance.

At least one student within each classroom in the United States requires essential best practices for teaching ADHD students (Singh, 2014). Due to legislative acts, such as No Child Left Behind Act (NCLB) 2002 and Every Student Succeeds Act (ESSA) 2015, every child's academic needs are addressed in schools. Educators continue to vocalize the need to further educate parents on how to best meet the learning needs of students with ADHD within their learning environment (Singh, 2014). In order to determine parent perceptions of how ADHD medication affects the child's behavior and academic performance, a survey was sent home. This topic was important due to the high number of children in both participating schools receiving medication for ADHD. This was an experimental study centered around a parent survey. The survey focused on specific symptoms, issues, and inappropriate behaviors ADHD children face daily. The parents were asked to rate the ADHD child's behavior and academic performance one time each over the last six months, while not on medication and on medication. This study was beneficial in developing an understanding of parent perceptions so educators can better assist and support the ADHD child's classroom academics and behavior.

Children diagnosed with ADHD exhibit behavioral and academic performance issues due to the inability to interact with others. Children with ADHD are known to become sidetracked and become challenged when forming productive relationships (Efstratopoulou, Janssen, & Simons, 2012). Research asserted that approximately 50% of students with ADHD are retained during the adolescent years (Appalachia Educational Laboratory, 2015). Furthermore, before they reach the age of 12, 80% of ADHD students

struggle in the areas of reading, handwriting, spelling, and arithmetic and can find it difficult to earn a high school diploma (Appalachia Educational Laboratory, 2015).

Educators and parents identify whether a strategy was successful for an ADHD child through observation of exhibited behaviors (Alberta Education, 2006). For the purpose of this study, the survey was utilized to determine parental perceptions regarding the ADHD child's behavior and academic performance in relation to ADHD medication. The parent assessed the ADHD child's behavior alone in the privacy of their home. The child had to take medication for ADHD for at least six months prior to the parent completing the survey. Relying on the parent for this information assisted educators in how to better serve ADHD children's behavioral and academic needs. The parents were told in the recruitment letter that the child had to be on prescribed ADHD medication for at least 6 months prior to participate in the study. The parents were asked to think about their child's behavior within the last 6 months and with that in mind answer the survey twice in one day, once before their child took medication, and once after their child took medication.

In addition, Pfiffner, Villodas, Kaiser, Rooney, and McBurnett (2013) stated that existing school-based services are not designed to meet the social and academic needs of children that are diagnosed with ADHD. It was necessary to recognize these children were provided with the same opportunities to learn as their classroom peers. A goal within this study was to ensure elementary stakeholders possess pertinent information related to parental perceptions of ADHD, the medication, and the effects on inappropriate behavior and academic performance of the ADHD child in the elementary school. This study may benefit parent's teachers, school nurses, school counselors, and administrators of children diagnosed with ADHD. Each stakeholder will become better informed about the ADHD

diagnosis by collaborating and sharing knowledge on ADHD medications and other options available (Alberta Education, 2006).

Outside of an ADHD child's ability to remain focused and manage their emotions, children with ADHD are much like their peers, yet often they experience difficulty with academics and forming relationships. Children with ADHD are intelligent and capable of learning when presented with effective strategies to support the ADHD disorder (Brand, Dunn, & Greb, 2002). This study added to the existing research available for parents and stakeholders concerning parent perceptions of the ADHD child's inappropriate behaviors and academic performance before and after medication.

Purpose of the Study

The purpose of this quantitative descriptive study was to determine the perceptions of parents in regards to the ADHD child's behavior and academic performance before and after taking medication. The study determined how parents perceived ADHD medication and the improvements observed with the ADHD child in relation to behavior and academic performance.

Quantitative research is defined by McLeod (2017) as involving the gathering of numerical data and revealing the view of relationship between theory and research as deductive, a preference for natural science approach, and as possessing an objectivist conception of social reality. McLeod (2005) stated, "Quantitative research methods describe and measure the level of occurrences on the basis of numbers and calculations. Moreover, the questions of "how many?" and "how often?" are often asked in quantitative studies" (p. 2).

The phenomenon for this study is children diagnosed with ADHD and to determine if the prescribed ADHD medication improves behavior and academics based on the parents' survey responses. The data collection in this study consisted of surveying a group of K–5 parents of ADHD medicated children from two specific rural communities in southwest Alabama. Results from the study may increase the knowledge base concerning ADHD children and the prescribed medication. The researcher's hypothesis was to determine if there was a statistically significant relationship between parent perceptions of an ADHD child and the behavior and academic performance before and after taking ADHD medication, as measured by a modified version of the National Institute for Children's Health Quality (NICHQ) Vanderbilt Assessment Scale for assessing ADHD behaviors Mark Wolraich in 1998.

Prior research supported the use of a survey as a basic quantitative research method for this study. Guest, Namey, and Mitchell (2013) indicated that "quantitative studies seek to generate rich, contextually laden, explanatory data" (p. 47). By conducting surveys, the researcher gains more in-depth knowledge of social experiences (Gill, Stewart, Treasure, & Chadwick, 2008). A survey allows researchers to better understand the universe as well as their involvement in the universe (Merriam, 2009). Data collected from the parental survey was beneficial because it described the parents' perceptions of the ADHD child's inappropriate behavior and academic performance in relation to the prescribed ADHD medication. The study also allowed the researcher to share various types of support ADHD children need in the classroom with other educators and stakeholders based on parent perceptions.

Research Questions and Hypotheses

The purpose of this quantitative descriptive study was to determine the perceptions of parents in regards to the ADHD child's behavior and academic performance before and after taking prescribed ADHD medication. The following questions and hypotheses served as the focus of this study and guided the research. The questions will include hypotheses pertinent to the participant responses on the quantitative survey.

Overarching Research Question: What relationship exists between parent perceptions of the ADHD child and the effects of ADHD medication on the child's inappropriate behavior and academic performance?

Q1. To what extent, if any, is there a difference in parent perceptions of the ADHD child's inappropriate behavior before and after ADHD medication?

$H1_o$. There is a statistically significant difference in parent perceptions of the ADHD child's inappropriate behavior before and after taking the prescribed ADHD medication.

$H1_a$. There is no statistically significant difference in parent perceptions of the ADHD child's inappropriate behavior before and after taking the prescribed ADHD medication.

Q2. To what extent, if any, is there a difference in parent perceptions of the ADHD child's academic performance before and after taking the prescribed ADHD medication?

$3H2_o$. There is a statistically significant difference in parent perceptions of the ADHD child's academic performance before and after taking the prescribed ADHD medication.

$H2_{a.}$ There is no statistically significant difference in parent perceptions of the ADHD child's academic performance before and after taking the prescribed ADHD medication.

Research Design

A descriptive survey design was used as the quantitative research methodology in this study. Quantitative research encompasses the collection of numerical data, which are analyzed statistically to answer narrow, explicit research questions (Creswell, 2009). The phenomenon of this research study was parent perceptions of the ADHD child's behavior and academic performance before and after taking the prescribed ADHD medication. Creswell (2009) suggested in survey research, the researcher administers a questionnaire to gather data to a selected sample. Once data is gathered, the researcher extrapolates data to reveal the population's attitudes, behaviors, beliefs, and opinions.

Target Populations, Sampling Method, and Related Procedures

According to Creswell (2009), purposeful selected participants or places are significant for a quantitative approach. The rationale for using purposeful selected participants was that they were best suited for understanding and providing feedback for a subject matter in which they are familiar. The purposeful selected participants for this study were the parents of medicated ADHD children who volunteered to participate. Creswell (2009) indicated the focus used in quantitative research is to purposefully select individuals, an area, or material that will assist the researcher to better understand the issue. Themes based on inappropriate behaviors and academic performance of ADHD children that emerged from the responses of the 33 questions on the pre-survey and 38 questions on the post-survey, were identified. The sample size and setting of this study consisted of 78 parents of ADHD children from two

PreK–5 elementary schools, who lived in two rural, low socioeconomic towns in southwestern Alabama.

From the selected participants, the researcher provided the information for this study. Participants were asked to take part in the study if their child had been previously diagnosed with ADHD and took prescribed medication as treatment for the ADHD for at least six months prior to the study. Selected participants gave consent that he or she was 18 or older and was the parent or legal guardian of a child in K–5th grade in the public-school system of the rural towns. Perceptions of ADHD parents and how ADHD medication affected the child's behavior and academic performance was the purpose of this study. The population for the first school was approximately 600 elementary students and 98% of the students received free lunch. Ninety-seven percent of the students at this school were African American. The population of the second school was approximately 450 students with 64% of the students being Caucasian and 46% of the students received free lunch.

The criteria suggested for this study was the parent or legal guardian should have a child diagnosed with ADHD and take medication for at least six months prior to taking the survey. The g priori power analysis using a one-tailed t-test was conducted prior to this study which suggested at least 72 participants must participate in the study. Due to the total number of ADHD children at the two schools being 125 children, the researcher did not foresee an issue with participation in the study. The study employed a "power analysis" and determined an appropriate sample size for this study. Creswell (2009) recommended the use of a power analysis when determining the sample size for a research study. For this study, the researcher calculated the g priori power analysis using a confidence level of 90%, and an effect size of 0.50. The total student population for both schools was calculated at approximately at 1000

students with 125 of the students diagnosed with ADHD, a calculated sample size of 72 participants was appropriate. Creswell (2009) suggested sample size calculations must be taken into account and the fraction of the population that a sample will constitute is determined by what error can be allowed.

To achieve the G power sample size of 72 for this study the survey was distributed by each school's nurse in a sealed envelope. Creswell (2009) suggested gathering more than the sample size to create a more significant study. If the parent participants did not return the survey, the survey packet was sent home again in a sealed envelope along with the introduction letter and the consent forms. An envelope with a deadline date was enclosed for participants to return the surveys to the school. The surveys were placed in a locked submission box located in the nurse's office. The school nurse emailed teachers to let them know where to return the completed surveys, if parents returned the surveys in their child's backpack.

Data gathered from the surveys provided the researcher with information used to deepen the understanding of parents' perceptions of ADHD and to enhance teaching strategies for other stakeholders involved in educating ADHD students. The need for the study was explained to participants. Participants were informed of their rights prior to completing the surveys. Responses to the questions were answered on paper for the discretion of the participant. Furthermore, the researcher included the need for the survey to be completed in a quiet location to ensure reliable and meaningful responses. The information collected in this study was identified in the study, but names of the participants and their ADHD child remained anonymous to protect their identity.

Instrumentation

This quantitative descriptive study used a modified version of the NICHQ Vanderbilt Parent Rating Scale. The researcher modified the instrument to ask questions focused on the research. Mark Wolraich developed the Vanderbilt ADHD Diagnostic Rating Scale (VADRS) at the Oklahoma Health Sciences Center in 1998. The VADRS was developed as a preliminary instrument assessment tool to assess ADHD symptoms with children ages 6–12 and ADHD symptoms' effects on performance in academic and behavioral areas. Wolraich created the Vanderbilt diagnostic style because other assessments lacked common co-morbid conditions associated with ADHD. There are two versions available: a parent form that contains 55 questions, and a teacher form that contains 43 questions. The VADPRS (parent) was compared with the VADTRS (teacher) and C-DISC-IV ratings of children in clinical and nonclinical samples. The NICHQ Vanderbilt Assessment was designed to collect and compare findings across multiple raters. The modified survey for this research study was used in a different way than it was initially intended. Initially, the parent survey was intended to be diagnostic, but this study's focus was to explore parent perceptions of symptoms before and after medication and parents rated their answers on a Likert scale.

The modified version of the pre-constructed survey was distributed paper-pencil. Merriam (2009) stated, "in all forms of quantitative research, a popular form of data is determined through surveys" (p. 87). The interested participants voluntarily participated. The questions used in the study were prepared prior to the survey (Lodico et al., 2010). The purpose for employing a survey was to enable the researcher to determine the parent perceptions of the ADHD child's behaviors and academic performance. Merriam (2009)

asserted that the design of a quantitative study focuses on "selecting a sample, collecting and analyzing, and writing up the findings" (p. 11).

Predetermined questions were asked of the parent participants in relation to perceptions of the ADHD child's behavior and academic performance before and after medication. In order to provide the participants with meaningful questioning, the questions were thoroughly designed to capture essential information (Lodico et al., 2010). Another benefit of using a survey was that it enabled participants to share prior knowledge concerning the specific subject matter (Seidman, 2013). In doing so, the participants supported the researcher in providing valuable information to assist the ADHD child.

The researcher chose to use the modified version of the VADRS parent survey since the original VADRS parent survey consisted of 55 questions, and too much data would have been retained due to the sample size. In addition, parents may not have been willing to participate in a longer survey. The parents were told in the recruitment letter that the child had to be on prescribed ADHD medication for at least 6 months prior to participate in the study. The parents were asked to think about their child's behavior within the last 6 months and with that in mind answer the survey twice in one day, once before their child took medication, and once after their child took medication. The first survey consisted of 33 questions and the second survey consisted of 38 questions. The modified pre-and post-survey questions only related to ADHD because ADHD was the focus of the study, whereas the original survey included behaviors related to Oppositional Defiant Disorder (ODD) and depression. ODD and depression were not included in this study because the children of the parents who participated in the study were only diagnosed with ADHD. The modified survey questions focused on the areas of academic performance and symptoms of ADHD**.** In addition to symptom scales corresponding to

the *DSM-IV*, the NICHQ Vanderbilt Assessment provided scores in the areas of inattention, hyperactivity/impulsivity learning problems, executive functioning, aggression, and peer/family relations. The survey asked the participant to score on a Likert scale.

For this study, a paper-pencil survey was used and distributed to parents in two rural towns in Alabama. The rural Alabama schools consisted of approximately 1,000 elementary children, and the survey was sent home by the school nurse to 125 parents of ADHD children prescribed with ADHD medication. The school nurse was the only person with access to the ADHD medication information. An envelope was sent home with the survey packet which included an informed consent notice, the survey, and directions for completing and returning the survey. The surveys were returned to the locked submission boxes located in both school nurses' offices. The location of the locked submission box was discreet so no one was able to see the parents placing the surveys in the box. A reminder letter was sent home to all eligible parents to encourage them to participate if they had not yet done so. These schools were chosen because the reading coach at this school had firsthand knowledge of how students with ADHD learn, behave, and communicate with classroom peers. Secondly, the school principals supported this study because of their years of administrative experience as well as their knowledge pertaining to children with ADHD.

The principals of both schools recommended conducting the study via paper pencil due to limited access of technology. To achieve significance for the study; at least 72 participants were needed based on the g priori power analysis conducted prior to the study. Parents of kindergarten through fifth grade at the public elementary schools were invited to participate. The schools' students receive approximately 98% free and reduced lunch and live in high poverty, rural communities.

Baker and Edwards (2012) explained that during a quantitative study, the examiner may be unsure of the amount of information needed. They also stated that for the purpose of identifying the amount of data required, the researcher was encouraged to "interrogate the purpose of their research" (p. 5). Furthermore, "the best answer is simply to gather data until empirical saturation is reached; however, this is not always possible or practical" (Baker & Edwards, 2012, p. 8).

A quantitative approach proved beneficial to this particular study because it allowed the researcher to gain knowledge and understanding about a specific individual group, or situation (Lodico et al., 2010). The focus of this study was a voluntary group of parents, a non-random sample, through purposeful selection, whose children were diagnosed with ADHD within one of two high poverty rural communities. By identifying the parent perceptions of the effects of the ADHD child's prescribed ADHD medication, educational stakeholders were able to increase their awareness of a variety of strategies to accommodate the ADHD child and communicate more effectively with the parents. During data collection and subsequent analysis, the researcher aimed to identify specific themes on parental perceptions which supported children with ADHD behaviorally and academically.

Data Collection

The procedures for collecting data for this study were voluntary and the researcher aimed to determine whether a relationship existed between the parent perceptions of the ADHD child's medication, behavior, and academic performance. Likert scale scores were retrieved from the parent surveys and categorized into four areas: the ADHD child's behavior before and after medication and the ADHD child's academic performance before and after medication. A two-way cross tabulation

contingency table was conducted to evaluate parent perceptions of whether the frequency of inappropriate behavior of their ADHD children differed before and after taking ADHD medication.

By using the Likert-type survey, the researcher determined relationships between parent perceptions of the ADHD child and the possible effects of the ADHD medication as it related to behavior and academic performance. Relationships were compared to those found in the literature. The researcher conducted a cross tabulation analysis question by question in the areas of behavior and academic performance. The following questions were tested: Were there differences in parent perceptions of the ADHD child's inappropriate behavior before medication? Were there differences in parent perceptions of the ADHD child's academic performance before medication? Were there differences in parent perceptions of the child's behavior after medicine? Were there differences in parent perceptions of the child's academic performance after medication?

The original form of the survey was a diagnostic tool to assist doctors in diagnosing children with ADHD, ODD, anxiety, and depression. The original survey used a scoring scale to diagnose the child with ADHD, whereas the modified version used in this study was rated on a Likert scale and only focused on behaviors relative to ADHD. ADHD was the primary focus in this research because the children whose parents participated in the study were only diagnosed with ADHD.

Operationalization of Variables

The independent variable was the ADHD medication; whereas the two dependent variables were the parent perceptions of behavior and academic performance before the medication and the parent perceptions of behavior and academic performance after the

medication. The researcher grouped the responses to the survey according to the dependent variable. Each of these variables was used to measure the perceptions of the relationship between the medication and the child's behavior and academic performance. The researcher utilized a two-way cross tabulation analysis to determine the results.

Data Analysis Procedures

The quantitative data analysis involved analyzing and interpreting the data to find themes based on parent perceptions of inappropriate behavior and academic performance of ADHD children prescribed ADHD medication (Creswell, 2009). According to Creswell (2009), the analysis of the data collected in this study will include preparing the data, gaining a deeper understanding, representing the data, and identifying the big picture. The findings from the survey will add to available literature for shareholders working with children diagnosed with ADHD.

Collected data did not contain identifying information to protect the confidentiality of all respondents. The researcher retrieved the Likert scale scores from the parent surveys and categorized responses into four areas: the ADHD child's behavior before and after medication and the ADHD child's academic performance before and after medication. By computing the two-way cross tabulation, using SPSS software, the researcher analyzed the relationships and differences between the variables. The two-way cross tabulation data was categorical which was required to create the contingency table. In an attempt to reveal the variable distribution of ratings within each group score, frequencies were demonstrated visually as bar graphs. To capture the degree in the distributions of ratings by parents, normality was considered by analyzing the rating scale of each score distribution.

The researcher utilized the data analysis to examine the parent perceptions of ADHD medication and how the medication affected the ADHD child's inappropriate behavior and academic performance. The researcher aimed to capture the parents' beliefs if a relationship existed between medicated ADHD children and their inappropriate behavior and academic performance. By using two-way cross tabulation, the researcher extrapolated parent perceptions from the surveys.

Limitations of the Research Design

Merriam (2009) asserted, "all research designs can be discussed in terms of their relative strengths and limitations" (p. 50). It was the researcher's responsibility to identify the limitations within the research.

A limitation considered for this study was that relatively few parents may have participated in the study because of lack of parental involvement in the school system. A relatively small sample of male parents may have participated in the survey compared to female parents due to the high number of single mother families living in the two communities. Johnston, Hommerson, and Seipp (2008) conducted a study of solely mothers' perceptions regarding the social validity of behavioral and pharmacological treatments for ADHD.

In addition, another limitation which existed was the parents without transportation to the participating facility may have been excluded if the parents were unaware of the study. Also, parents of children with ADHD who struggled to take off work may not have visited the school or doctor's offices frequently.

Internal and External Validity

Khorsan and Crawford (2014) stated that the principal means utilized to achieve internal and external validity are randomization, the use of a research design and statistical analysis which are appropriate to the types of data collected, and the question(s) the investigator(s) is attempting to answer. Khorsan and Crawford (2014) also suggested that single-subject experimental studies virtually always have high internal validity since the subjects serve as their own controls but, are extremely low with respect to external validity. Stakeholders and future researchers were provided with credible, reliable, and valid data.

Although it was difficult to include all data collected due to the number of survey questions asked, tables were created to organize results. Furthermore, for this study, the findings were reported explicitly, however, more specific detailed information may be identified by future research.

Expected Findings

The following findings were expected to emerge from the present study. The main finding the researcher expected was to determine if the parents' perceived the medication as improving inappropriate behavior and academic performance of the ADHD child. A second expectation was to identify common themes based on inappropriate behavior and academic performance of ADHD children when taking prescribed ADHD medication so educators and stakeholders could better communicate strategies to assist the parents of ADHD children. The researcher also hoped to determine better strategies for assisting parents of ADHD children. In addition, the researcher aimed to identify ideas of how to help ADHD children be more successful in school by determining the parent perceptions of inappropriate behavior. Stakeholders of ADHD children do not get much

professional development on how to meet the ADHD child's needs and the researcher aimed to determine areas parents felt their ADHD child could be better served.

Ethical Findings

Resnik (2015) describes ethics in research as the difference between what is acceptable and unacceptable behavior as the norms of conduct. The focus on ethics in this research study was to "respect the research participants during and after the study has been conducted by agreeing to the standards" (Alderson & Morrow, 2011, p. 3). In order to ensure credibility within this study, the researcher had a responsibility to the participants. The responsibilities were to ensure the participants understood the purpose of the study and need for their participation. The researcher informed the participants of their rights, and that at any time during the interview process, they could choose to leave (Cohen, Manion, & Morrison, 2011). Other responsibilities included providing the participants with a consent form, and protecting their identity (Gregory, 2003). While collecting data, the researcher documented the responses from each of the surveys using a two-way cross tabulation analysis. The questions asked in the surveys were designed to identify the perceptions of the parents and their ADHD child prescribed ADHD medication. It was the researcher's responsibility to provide stakeholders and future researchers with credible and reasonable data.

Prior to beginning the survey, participants were provided an informed consent. Informed consent provided the participants in the study with an option of whether they would like to participate in the study. When providing participants with informed consent, the researcher ensured participants were willing to participate and the information provided to them was transparent.

Confidentiality was significant in this study and therefore, the individuals choosing to participate remained anonymous. The identity of their child's name and school was not known nor revealed in order to protect their privacy. The information collected during this study was treated with the highest regard and placed in individual folders in a secure locked file cabinet. Responsibilities of the researcher were to ensure that the participants for this study understood the purpose of the study and need for their participation.

Chapter 3 Summary

The literature indicated that quantitative studies were used to describe the condition of ADHD in the past. A general quantitative research method was selected to identify the common perceptions of parents of ADHD children in an effort to improve the behavior and academic performance of elementary children. A quantitative research method was used to allow for a deeper understanding of the phenomenon of parents' perceptions of medication for childhood ADHD. The information identified in this study will add to the available research on parental perceptions of ADHD children and the effects of the prescribed medication.

Data were collected and analyzed in order to provide educational insight on how parents perceived the phenomenon of childhood ADHD with improved insight on how to best meet the academic and behavioral needs of ADHD children. Chapters 4 and 5 will describe the data, results, and findings from this study of parental perceptions of ADHD in children and their perceptions of the prescribed medication and the effects on behavior and academic performance.

Chapter 4: Data Analysis and Results

Introduction

The purpose of this quantitative descriptive study was to determine the perceptions of parents in regards to the ADHD child's behavior and academic performance before and after taking prescribed ADHD medication. The study determined how parents perceived ADHD medication assisted their ADHD child in relation to improving behavior and academic performance. This chapter provides a summary of the research survey, analysis of the research study's data, and limitations to the study, while addressing the total responses of the participants and significance of the data. Data collected from the research questions is provided using tables and graphs.

The instrument used in this study was an adaptation of the NICHQ Vanderbilt Parent Survey for ADHD. The non-random sample of parents were asked to rate their child's behavior and academic performance using the Likert rating scale for one day prior to medication and after medication. The NICHQ Vanderbilt Parent Survey was a popular survey used by local doctors who provide care for the children of the selected parents in the study. The sample of this study was based on a population of parents of children diagnosed with ADHD. The researcher aimed to determine if parent perceptions of prescribed ADHD medication helped the ADHD child achieve better academically and improve behavior.

Data collection in this study consisted of 33 Likert questions on the pre-test and 38 Likert questions on the post-test, respectively, using the modified version of the NICHQ Vanderbilt Parent Survey. In addition to symptom scales corresponding to the *DSM-IV,* the NICHQ Vanderbilt Parent Survey provided scores in the areas of inattention, hyperactivity, impulsivity, learning problems, executive functioning, aggression, and peer/family relations. The NICHQ

Vanderbilt Parent Survey collected and compared findings across multiple raters. The participants were asked to score survey answers on a Likert scale of 0–3 in the behavior category and 1–5 in the performance category. The behavior rating scale was based on 0–Never, 1–Occasionally, 2–Often, 3–Very Often, while the academics rating scale included 1–Excellent, 2–Above Average, 3–Average, 4–Somewhat of a Problem, 5–Problematic. Tables and graphs included in this study provide summaries of data collected from the study's survey questions.

By surveying a group of K–5 parents of ADHD children prescribed with ADHD medication from two specific rural communities in southwest Alabama, results from the study increased the knowledge base concerning parent perceptions of the relationship between the prescribed ADHD medication in relation to the child's behavior and academic performance. Data collected from the parental surveys was beneficial because it described the parents' perceptions of their child's behavior and academic performance in relation to the medication. Data also provided much needed knowledge as to what type of supports ADHD students need in the classroom based on parents' perceptions. This study included current data between two data sets so a descriptive design was chosen to examine the relationship or lack thereof, between the variables of parent perceptions of ADHD medication, behavior, and academics. In order to consider if the relationship between the variables was significantly different, the hypothesis testing process was used (Adams & Lawrence, 2015).

The following research questions served as the focus of this study:

Overarching Research Question: What relationship exists between parent perceptions of the ADHD child and the effects of ADHD medication on the child's inappropriate behavior and academic performance?

Q1. To what extent, if any, is there a difference in parent perceptions of the ADHD child's inappropriate behavior before and after ADHD medication?

Q2. To what extent, if any, is there a difference in parent perceptions of the ADHD child's academic performance before and after ADHD medication?

The following hypotheses correspond to the research questions. The hypotheses are:

$H1_o$. There is a statistically significant difference in parent perceptions of the ADHD child's inappropriate behavior before and after ADHD medication.

$H1_a$. There is no statistically significant difference in parent perceptions of the ADHD child's inappropriate behavior before and after ADHD medication

$H2_o$. There is a statistically significant difference in parent perceptions of the ADHD child's academic performance before and after ADHD medication.

$H2_a$. There is no statistically significant difference in parent perceptions of the ADHD child's academic performance before and after ADHD medication.

The paper-pencil parent survey was distributed to parents of ADHD medicated children at two rural PreK–5 elementary schools. Gathered findings from the survey provided vital information regarding parental perceptions of the impacts of ADHD medication on their child's behavior and academic performance. Together, the rural Alabama schools consisted of approximately 1,000 elementary students, and the survey was sent home by the school nurse to 114 parents of students who take ADHD medication. The school nurse was the only person who possessed access to the ADHD medication information. The envelope-sealed survey packet included an informed consent notice, the survey, and directions for completing and returning the survey. The surveys were placed in the locked submission boxes located in both school nurses'

offices. A second and third reminder letter and survey packet was sent home to all eligible parents which encouraged them to participate if they had not returned the survey packet.

This study included a voluntary group of parents, using a non-random sample, through purposeful selection, whose ADHD child took ADHD medication at least six months prior to participating in the study. During data collection and subsequent analysis, the researcher identified specific parental perceptions which support ADHD medicated children's academic and behavioral needs. Significance for the study was achieved by exceeding the needed 72 participants based on the g priori power analysis conducted prior the study. There were 78 participants who returned surveys. Themes based on behavior and academic performance of ADHD children that emerged from responses to the 33 and 38 survey questions, respectively, were identified. The selected participants followed the consent guidelines previously stated.

Data gathered from the survey provided the researcher with information which can be used to deepen the understanding of parents' perceptions of ADHD and to enhance teaching strategies for other stakeholders involved in educating ADHD children, while also expanding the literature regarding this topic. The need for the study was explained to the participants in the recruitment letter and participants were informed of their rights prior to completing the surveys. Survey responses were provided at the participants' discretion using the paper/pencil method. Furthermore, the researcher included the need for the survey to be completed in a quiet location to ensure reliable and meaningful responses. The information collected in this study was identified, but the names of the participants remained anonymous to protect their identity.

The school nurse in each school provided the number of children who take prescribed medication for ADHD. Survey packets were sent to the parents of the

identified children. Parents were asked to participate in a voluntary study concerning parents' perceptions of how ADHD medicine affects the ADHD child in relation to the child's behavior and academic performance. Participants were informed of the study and the recruitment letter explained that at any time during the survey, they could choose to discontinue participation in the study. Parents who chose to participate received a consent form acknowledging the details of this study, provided their signature acknowledging their willingness to participate, and were informed of their rights as a participant. Furthermore, the participants and their child remained anonymous during the study. Names were not disclosed for the purpose of confidentiality. The final determination as to whether the goal of this study was met centered on the information collected from the participants' perceptions regarding their child's effects of ADHD medication on behavior and academic performance.

Confidentiality was significant in this study and therefore, the individuals who chose to participate remained anonymous. The identity of their child's name and school was not collected nor revealed in order to protect their privacy. The information collected during this study was treated with the highest regard and placed in individual folders in a secure locking file cabinet.

Description of the Sample

The actual sample used in this Quantitative Descriptive study was 78 parent participants from the two schools. A total of 78 surveys were sent out to the parents of ADHD medicated children at the first school and 36 surveys were sent out to the parents of ADHD medicated children at the second school. The total number of surveys distributed between parents at both schools was 114. The parent participants at the first school

returned 69 surveys, whereas only nine surveys were returned by the parents of the second school. In addition to the 69 surveys returned from the first school, five more were returned, but four parents were not interested in participating and one parent stated that his child did not take medication, which disqualified him from the study. A total of four surveys from the first school were never returned, even after a second and third distribution of the survey packet. A total of 27 surveys were never returned from the second school following the same collection protocol. The total sample size was 114 surveys sent to parents, and 78 surveys were returned.

In order to use the SPSS for questions on the parent survey, a rating scale number was assigned to each possible response for data entry purposes. The questions concerning length of time on medication, daily dosage times, and overall improvements of behavior and academic performance were placed on a rating scale. This allowed the researcher to determine the parent's perceptions in terms of a number and made the survey more quantifiable. During the data analysis, each survey responder was numerically assigned a number from 1–78 to preserve anonymity and also validity between the two surveys (before and after medication). The data for both samples were graphed using bar graphs to determine the strength of the relationship and direction between variables.

Summary of the Results

In comparison to the proposed sample described in Chapter 3, a modification was made to the total number of surveys distributed due to a change in enrolled children who took ADHD medication at both schools. The proposed sample included children in fifth grade from the previous school year, and those children no longer attend either school approved for the study. In addition, there was a difference in the total number of children

who still attend the two schools and are medicated for ADHD. The proposed sample was decided in April 2017, and the actual sample was determined in August 2017, which began a new school year. Three of the previously determined children moved out of the school district, 5 of them transitioned to middle school, and the other 3 children no longer take ADHD medication.

There were no new children enrolled for the current school year at either school who take ADHD medication. Parents in grades K–5 remained the focus of the study. Gender and ethnicity were not proposed nor compared in this study. The first school's survey return rate of nine out of 36 was significantly lower than the second school's return rate of 69 out of 78. This difference in return rate was unexpected due to the varied level of parental involvement between the two schools. The first school generally has higher parental involvement than the second school according to both school's administrators.

The first survey examined the relationship between a non-random sample of parent perceptions of the ADHD child's inappropriate behavior and academic performance prior to taking the ADHD medication. The data analysis revealed a strong negative correlation between the variables of inappropriate behavior when not on medication, and a strong negative correlation between the variables of academic performance when not on medication. The results supported rejecting the null hypothesis that a significant relationship existed between a parent's perceptions of the ADHD child's behavior and academic performance prior to taking the ADHD medication.

The second survey examined the relationship between a non-random sample of parent's perceptions of their child's inappropriate behavior and academic performance after taking ADHD medication. The analysis of the research data revealed a strong positive

relationship between the variables of ADHD medication and improved behavior and a slightly positive relationship between the variables of ADHD medication and improved academic performance.

The post-survey of parents' perceptions of overall improvement of behavior, while on medication, were rated as (69%) Never, (59.7%) Occasionally, (43.1%) Often, (34.6%) Very Often. Parent perceptions of academic performance before taking medication were rated at (34.8%) excellent, (35.1%) above average, (42.3%) average, (64.8%) somewhat of a problem, and (68.9%) problematic. The perceptions of academic performance after taking medication were rated at (65.2%) excellent, (64.9%) above average, (57.7%) average, (35.2%) somewhat of a problem, and (31.1%) problematic. The parents did perceive a significant relationship between the ADHD child's improvement in behavior, academic performance, and ADHD medication in the "Problematic" and "Some Problem" categories of the Behavior section, and in the "Problematic" category of the Academic section of the survey.

Detailed Analysis

Research question 1. To what extent, if any, is there a difference in parent perceptions of the ADHD child's inappropriate behavior before and after ADHD medication?

$H1_o$. There is a statistically significant difference in parent perceptions of the ADHD child's inappropriate behavior before and after ADHD medication.

$H1_a$. There is no statistically significant difference in parent perceptions of the ADHD child's inappropriate behavior before and after ADHD medication.

The parents rated their perceptions of the ADHD child's inappropriate behavior on survey questions 3–20 which had a Likert scale ranging from "never", "occasionally", "often", and "very often". Using descriptive analysis, bar graphs were used as a visual representation

of the relationship between the two variables medication period (before and after medication) and frequency of inappropriate behavior ("never", "occasionally", "often", and "very often").

A two-way cross-tabulation contingency table was conducted to evaluate parent perceptions of whether the frequency of inappropriate behavior of their ADHD children differed before and after taking ADHD medication. The two variables were medication period (pre-medication and post-medication) and inappropriate behavior (measuring frequency as "never", "occasionally", "often", and "very often"). The association between medication period and inappropriate behavior were found to be statistically significant, Pearson X^2 (3, N = 2801) = 192.96, $p < .001$, Cramer's V = .26. Cramer's V revealed a moderate effect size, i.e., 26% of the variance in the inappropriate behavior was accounted for by the period of medication, pre- or post. Use of standardized residual analysis indicated each pairwise comparison difference was statistically significant. See Table 1.

Table 1

Prevalence of Inappropriate Behavior Pre- and Post ADHD Medication

	Never		Occasionally		Often		Very Often	
Medication Period	*N*	%	*N*	%	*N*	%	*N*	%
Pre	157	31	319	40.3	390	56.9	535	65.4
Post	349	69	472	59.7	296	43.1	283	34.6

During post medication, parents perceived an increase in the number of inappropriate behaviors, which occurred occasionally or never during premedication, i.e., more inappropriate behaviors were now categorized as never occurring or occasionally occurring. And the inappropriate behaviors, which occurred often or very often during pre-medication

decreased in their occurrence during post medication. The parents perceived the medication to decrease inappropriate behaviors, which occurred “often” and “very often.” See Figure 1. Null hypothesis 1 which stated, there is no statistically significant difference in parent perceptions of the ADHD child's inappropriate behavior before and after ADHD medication was rejected.

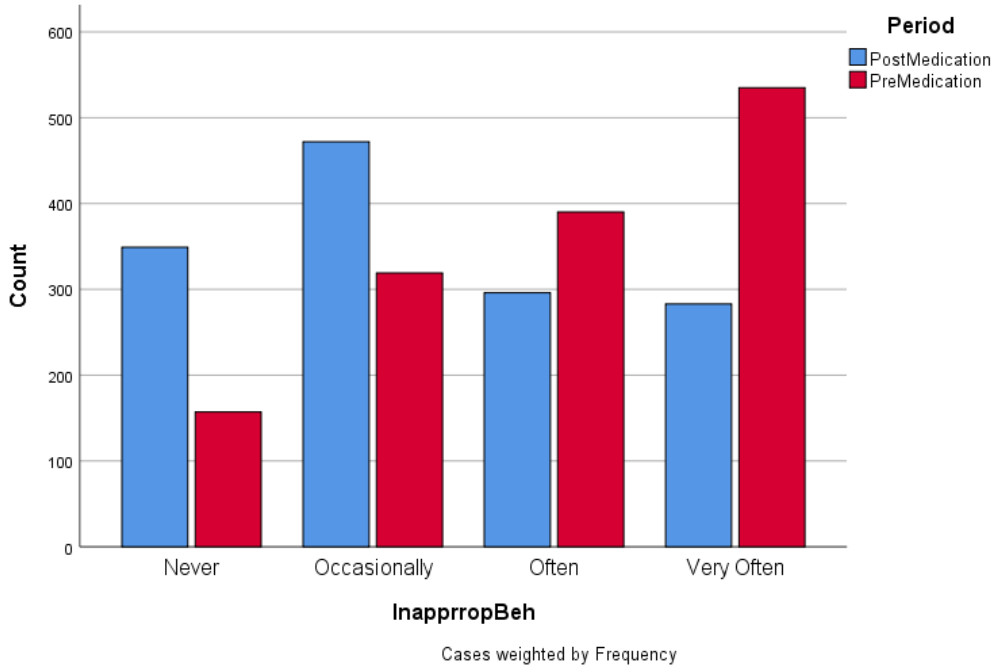

Figure 1. Changes in Frequency of Inappropriate Behavior Pre- and Post ADHD Medication

Research question 2. To what extent, if any, is there a difference in parent perceptions of the ADHD child's academic performance before and after ADHD medication?

$H2_{o.}$ There is a statistically significant difference in parent perceptions of the ADHD child's academic performance before and after ADHD medication.

$H2_{a.}$ There is no statistically significant difference in parent perceptions of the ADHD child's academic performance before and after ADHD medication.

The parents rated their perceptions of their child's academic performance on survey questions 21–28. Figure 2 and table 2 depict the parents' perceptions before and after medication in relation to academic performance.

A two-way cross-tabulation contingency table was conducted to evaluate parent perceptions of whether the academic performance of their ADHD children differed before and after taking ADHD medication. The two variables were medication period (pre-medication and post medication) and academic performance (measuring frequency as "problematic", "some problems", "average", "above average" and "excellent"). The association between medication period and academic performance were found to be statistically significant, Pearson X^2 (4, N = 620) = 44.83, $p < .001$, Cramer's V = .27. Cramer's V revealed a moderate effect size, i.e., 27% of the variance in the academic performance was accounted for by the period of medication, pre-or post. Use of standardized residual analysis indicated the following pairwise comparison differences were statistically significant, problematic and some problems, pre- and post-medication. See Table 2.

Table 2

Academic Performance Pre- and Post ADHD Medication

	Problematic		Some Problems		Average		Above Average		Excellent	
Medication Period	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
Pre	71	68.9*	83	64.8*	104	42.3	26	35.1	24	34.8
Post	32	31.1*	45	35.2*	142	57.7	48	64.9	45	65.2

* $p < .05$

The differences seen in Excellent, Above Average, and Average, pre- and post-medication were not statistically significant. The differences seen in "Some Problems" and

"Problematic" academic performance were statistically significant. The academic performance in areas where the students experienced some problems and problems, pre-medication were greater during pre-medication than post medication. See Figure 2. It appears the medication decreased the "some problem" and "problematic" learning experiences. Null hypothesis 2 which stated, there is no statistically significant difference in parent perceptions of the ADHD child's academic performance before and after ADHD medication was rejected.

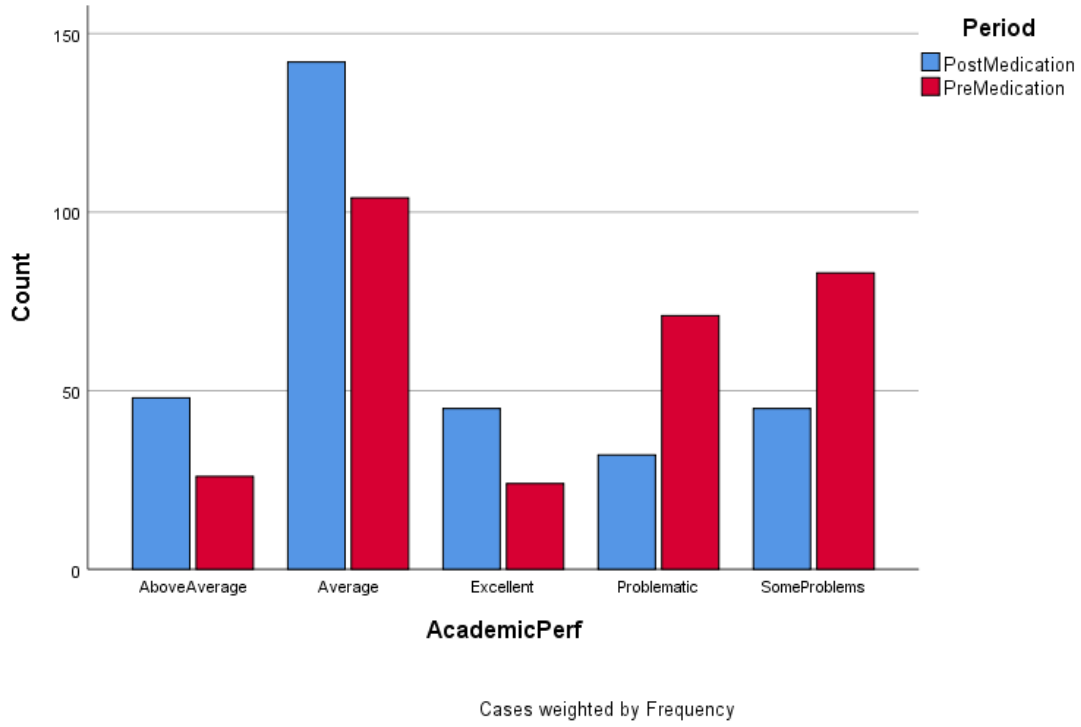

Figure 2. Changes in Academic Performance Pre- and Post ADHD Medication

Chapter 4 Summary

During this quantitative descriptive research study, the researcher aimed to examine and determine the parental perceptions of the ADHD child's medication in regards to inappropriate behavior and academic performance in an elementary school setting. The researcher determined parents' perceptions of how ADHD medication assists the ADHD child in relation to inappropriate behavior and academic performance by the survey results. This

chapter provided a summary of the research survey and analysis of the study's data, and included limitations to the study, addressing the participant response total and significance.

Parent perceptions of ADHD medication, inappropriate student behavior, and student academic performance served as the three main variables in this study which were examined to address the research questions. The results from the research study suggested that the parents who participated perceive ADHD medication provides a positive impact on the ADHD child's inappropriate behavior and academic performance. It is important to note that the results from the parents' perceptions suggested that overall the ADHD medication impacted the ADHD child's inappropriate behavior more than academic performance.

Chapter 5: Discussion and Conclusion

Introduction

According to Mahone (2012), in 2011, the CDC estimated that nearly 9% of children in the U.S. (1 out of 11 children between the ages of 5 and 17) have ADHD; the diagnosis is made in approximately twice as many boys than girls. As noted in the literature, the number of children diagnosed with ADHD vary in relation to their background. According to Sattler (2014), there is an over diagnosis of children with ADHD; 9.8% of European Americans, 9.5% of African Americans, and 5.5% of Hispanic children were diagnosed in 2014. This over-diagnosis can be attributed to the societal factors that affect parents' perceptions of the effects of ADHD medication for the ADHD child. This suggests that there is a need to address the parents' perceptions of children diagnosed with ADHD in relation to the impact ADHD medication has on the ADHD child's inappropriate behavior and academic performance.

This chapter presents a summary of the study, discussion of the results and the relation to the research-based literature, and limitations. In addition, implications of the results for practice, policy, and theory, recommendations for further research regarding the perceptions of parents of ADHD children in relation to the effects of ADHD medication on their child's behavior and academic performance, and conclusions were also included.

Summary of the Results

When analyzing the significant differences in parent perceptions of the ADHD child's behavior and academic performance in relation to ADHD medication, a significant relationship existed between the two variables. Research question one addressed the level of significance of parents' perceptions regarding the ADHD child's inappropriate behavior to ADHD medication. The association between medication period and inappropriate behavior

were found to be statistically significant. The variance in the inappropriate behavior was accounted for by the period of medication, pre- or post. Use of standardized residual analysis indicated each pairwise comparison difference was statistically significant. In this study, I wanted to know whether ADHD students' inappropriate behavior would decrease after they had taken their medication. I was interested in the effect medication had on students who exhibited inappropriate behaviors. The results show that after taking medication inappropriate behaviors decreased within some categories that were defined in the study. The inappropriate behaviors which occurred often or very often during pre-medication decreased in their occurrence during post medication. The parents perceived the medication to decrease inappropriate behaviors, which occurred "often" and "very often." Null hypothesis 1 which stated, there is no statistically significant difference in parent perceptions of the ADHD child's inappropriate behavior before and after ADHD medication failed to be rejected.

Research question two focused on parent perceptions regarding the ADHD child's academic performance when taking ADHD medication. In this study, I wanted to know whether ADHD students' academic performance would improve when they had taken their medication. I was interested in the effect medication had on students who experienced academic problems, those who are average academically and those who are academically above average. I found that parents perceived the medication did not affect the academic performance of ADHD students who were academically strong. The parents perceived the medication did, however, decrease the academic problems of the students. The two variables were medication period (pre-medication and post medication) and academic performance (measuring frequency as "problematic", "some problems", "average", "above average" and "excellent"). The association between medication period and academic performance were found to be statistically significant. Use of standardized

residual analysis indicated the following pairwise comparison differences were statistically significant, problematic and some problems, pre- and post-medication. Hypothesis 2 which stated, there is a statistically significant difference in parent perceptions of the ADHD child's academic performance before and after ADHD medication was met with significance and accepted. Null hypothesis 2 which stated, there is no statistically significant difference in parent perceptions of the ADHD child's academic performance before and after ADHD medication was rejected.

Discussion of the Results

This study revealed parent perceptions regarding the effects ADHD medication had on the ADHD child's inappropriate behavior and academic performance. In order to participate in the study, the child had to be taking ADHD medication for at least a six-month period prior to the beginning of the study.

The parents' perceptions confirmed a significant relationship between ADHD medication, inappropriate behavior, and academic performance. The parents' perceptions supported what Boyles (2009) suggested which was that ADHD medication does significantly impact inappropriate behavior and supports academic performance. Much to the surprise of the researcher, parents perceived the ADHD medication to have a slightly significant impact only with the ADHD child's problems in academic performance. The researcher expected a significant impact from the medication on an ADHD child's academic performance. The study showed below average students who were experiencing academic difficulty had improvement in academic performance as compared to their academic performance prior to taking medication. According to parent perceptions, the medication seemed to have a positive impact on their academic performance.

Discussion of the Results in Relation to the Literature

Based on the parents' perceptions revealed in this study, ADHD medication seemed to have a significant impact on inappropriate behavior and academic performance in the "Problematic" and "Some Problem" categories of the survey. This study upholds the earlier findings noted in the literature that ADHD medication does influence the behavior of an ADHD child. Data revealed the following: ADHD medication reduces the inappropriate behaviors so the child can grasp the academics, ADHD medication helps the child conquer the problems he/she has in learning, ADHD medication calms the child enough so he/she can focus. According to parent perceptions, there was a reduction in the frequency of inappropriate behaviors across all behavior categories after the student began taking medication.

According to Ziegler (2011), (70%–80%) of medication treatments have a positive impact on the ADHD child. The child's areas of improvement when medicated include: inattention, impulsivity, ability to stay on task, and complying with rules. This research study focused on the parents' perceptions, as there is little research available on parent perceptions of the ADHD child and ADHD medication. The research findings from this study added to the available literature by exploring the parents' perceptions concerning how ADHD medication affects behaviors and academic performance. Furthermore, as discussed in previous literature, medication issues of ADHD children are on the rise and remain an issue relevant in research. Therefore, it is imperative that parents and teachers provide developmentally appropriate support and supervision for children with ADHD (Newswire, 2016). Research question one addressed the level of significance of parents' perceptions regarding the ADHD child's inappropriate behavior to ADHD medication. Hypothesis one was met with significance and was accepted.

Research question two focused on the significance of the parent perceptions regarding the ADHD child's academic performance when taking ADHD medication. Hypothesis two was met with significance and was accepted. The parents perceived a significant relationship between the ADHD child's improvement in behavior, academic performance, and ADHD medication in the following areas of the survey: "Problematic" and "Some Problem" categories of the Behavior section, and in the "Problematic" category of the Academic section.

The literature explained that due to behavior issues, an ADHD child may have a difficult time staying focused, remaining in the classroom, and therefore may not learn what is required. This research study confirmed the same findings based on parents' perceptions provided on the survey. It is due to the negative behavior that some are retained, suspended, or expelled (Reid, & Johnson, 2012). One research study cited earlier in this study, identified the association between academic and behavioral skills and students who struggle with completing assignments and staying on task (Farrington et al., 2012). Another study conducted in Illinois for the Consortium on Chicago School Research identified connections between ADHD symptoms affecting academics, behavior, and students having difficulty remaining focused in the classroom. The academic behaviors, attendance report, and grades of students were examined for the purpose of identifying their association to underachievement. Although other variables such as attendance and cultural backgrounds played a role in student failure, this particular study indicated that academic performance and inappropriate behaviors were the central determination with regard to student achievement (Farrington et al., 2012). This research study confirmed similar results.

Academically, it was noted that students with ADHD underachieve compared to classroom peers. Behaviorally, they are described as students that generally act before they

think, are impulsive, and are in constant motion (Barkley, 2013). ADHD students have difficulty paying attention, concentrating, following simple directives, and completing assignments (DuPaul & Stoner, 2002). Often, they are disruptive in class, and talk without permission. Socially, they become frustrated easily with peers and often are deemed loners. Parents' perceptions were rated at (88.4%) as average or higher in overall improvements of behavior, while on medication. parents' perceptions outlined in this study confirmed similar issues as the previous literature stated.

Based on results in this study, a need exists for increased literature and research to support the effects ADHD medication has on a child's behavior and academics in school. Concerns over the increased use of psychotropic medication for preschool age children have led to calls for reviews of doctors' prescribing and treatment practices by a range of other professional bodies, including educational psychologists and teachers (Davis, 2011). In 1991, the Department of Education issued a policy regarding ADHD students stating that public schools must provide appropriate educational services to those identified with ADHD (Chicago Office for Civil Rights, 2001). In addition, the parents' perceptions supported previous literature which stated that although students diagnosed as having ADHD are challenged academically, behaviorally, and socially, the disorder can affect each individual differently (USDoE, 2003).

Barkley (2014) suggested that the effects on explicit behavior are greater than the effects on cognitive thinking and academic performance. The effects on cognitive thinking and academic performance did show an improvement in their study and also in the results of this study, just not as large as on behavior. According to Boyles (2009), ADHD children who are medicated usually perform better on math and reading standardized tests compared to classroom peers who also have ADHD, but do not take medication. Zeigler (2011) stated that most ADHD

children possess a 3 year or (30%) delay, which suggests on grade level challenging work, is difficult for them to complete due to a decrease in brain chemistry. Fontana (2013) suggested medicating ADHD children continues to be a contradicting issue due to physicians prescribing psychotropic medications without the proper diagnosis and the high number of children on ADHD medication, therefore more research on the topic is needed. This study portrayed the parents' perceptions that medication had on the behavioral and academic performance of ADHD students. This study also described the theoretical foundation that hypothetically explained the need for successful instructional strategies, techniques, and processes for working with ADHD students.

Limitations

Factors that may be potential weaknesses of a study are limitations (Creswell, 2009). Several limitations existed in this study. Merriam (2009) asserted, "All research designs can be discussed in terms of their relative strengths and limitations" (p. 50). The overall response rate of (n = 79) (69%) was high; however, one of the school's parent response rate was (25%) which was low. This school's response rate was possibly affected (n = 34), due to the fact that the school had just hired a new principal the week prior to the school start date. The other school's parent response rate was (88%) which was much higher than expected. This school normally maintains low parent involvement. In addition, the researcher conducted the study during the late summer as soon as school began.

Another limitation in this study was that the ADHD medicated children's ages varied from 5–12, the ADHD medications varied, and the brand name of the medication was not noted in the study. The time for recording results for the post survey differed from parent to parent

after their child took the medication. In addition, the reading of the scores of the survey were determined by the researcher.

A relatively small sample of male parents may have participated in the survey compared to female parents due to the high number of single mother families living in the two communities. The possibility existed that more relationships between the data could be revealed with more male participants in the study. However, the lack of male participants was unknown due to participant confidentiality.

Data was collected from two low-income PreK–5 elementary schools due to the high number of children who were diagnosed with ADHD. Future research should include other areas in similar living circumstances. Gathering data from higher income districts in Alabama may have revealed a different data set. Parents in higher income families may have had more education and resources, which better, educate them on ADHD symptomology and medication. Including higher income parents could have yielded significantly different data results. A non-random sample was used for the purpose of this study; however, a random sample may have been a better representative of parents of ADHD children in Alabama. In addition, the parents without transportation to the participating facility may have been excluded if the parents were unaware of the study. In addition, parents of children with ADHD who struggled to take off work may not have visited the school or doctor's offices frequently. Finally, the modified survey was not piloted prior to being sent home to parent participants. The survey adjusted many unknowns. The survey was not a construct measure, as it only measured counts. Normality was not important.

Implications of the Results for Practice, Policy, and Theory

This study's results showed significant differences in the parents' perceptions of ADHD medication in relation to how behaviors were affected, and there was a significant difference in the improvement of academic performance of ADHD medicated children. This would suggest that factors that are more specific need to be addressed concerning reasons as to why parents did not perceive the ADHD medication to significantly affect the ADHD child's academic performance in the Above Average, Average, and Below Average categories. In addition, this data revealed a need to uncover specific strategies parents, teachers, and other stakeholders could implement to assist ADHD medicated children in improving academic performance.

Recommendations for Further Research

This study was limited to 1 district (2 elementary schools) in a southwestern rural area within the state of Alabama, but the results could be representative of parents of ADHD children in a larger and different population or with a larger participant sample size. Additional research should be conducted in the future to determine similarities and differences among the perceptions of parents in relation to the effects of ADHD medication on ADHD children. In addition, researchers should investigate further to find the effectiveness of specific brands of ADHD medication in relation to more specific behaviors. Further research should also be conducted to determine which brand of ADHD medication yields a more significant improvement in an ADHD child's academic performance.

Conclusion

The results of this study demonstrate that parents' perceptions of their child's ADHD medication had a significant effect on the improvement of their child's behaviors related to

ADHD. However, the results showed a slightly significant difference in the parents' perceptions in relation to their child's academic performance at school. Some parents responded that their child's academic performance improved somewhat with ADHD medication, but the improvement was not as statistically significant as the improvement of behaviors related to the ADHD diagnosis. Further research in the area of ADHD medication in relation to improvements in academic performance is warranted from this study's results. In the future academic research related to ADHD, the researcher should include grades of the students' report cards to provide more concrete data than parent perceptions.

The study did not focus on the specific gender of the parent completing the survey, therefore there was no data to analyze concerning single mothers, single fathers, or married couples. Further research is recommended to gather responses on gender because minimal research exists on the difference in number of girls diagnosed with ADHD in comparison to boys. Few studies have focused on females diagnosed with ADHD, whereas the majority of the research focuses on boys. The research, which does exist on females, was completed over ten years ago, thus supporting the need for updated studies on females diagnosed with ADHD.

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Appendix A: Recruitment Letter

Dear Parent:

My name is Amy Vest. I have been an educator for twenty years and have taught many children who have been diagnosed as having attention deficit disorder with or without hyperactivity (ADHD). Currently, I am completing my Doctorate of Education at Concordia University Portland in Oregon. To complete my degree requirements, I am conducting a research study on parental perceptions of the effects ADHD medication has on a child's academics and behavior.

You are invited to participate in a study of parents of children who have been diagnosed with Attention Deficit Disorder with or without hyperactivity (ADHD) and take ADHD medication. During this research, I hope to learn how parents think their child's ADHD medication helps or does not help the child's academics and behavior. You do not have to be the child's biological mother or father, as long as you are their parent or legal guardian and the child lives in your home. You were selected as a participant for this study because according to your child's health questionnaire, he or she has been diagnosed with attention deficit disorder with or without hyperactivity and takes medication for ADHD.

If you decide to participate, I ask that you complete the enclosed survey and return it to your child's school in the enclosed envelope. The survey consists of 28-33 questions which relate to the academics and behavior of children diagnosed with ADHD. Please answer these questions based on the last six months of your child being medicated for ADHD. The first two questions concern the amount of time your child has been taking ADHD medication and the dosage of medication. The remaining questions pertain to behavior, performance on academics, and your overall perceptions of how the medication affects your child. Completion of the survey

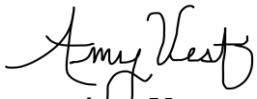
should take only about 10-15 minutes of your time. There is a submission box located in the nurse's office.

The risks involved are that you may experience discomfort about providing personal information concerning your child. There is some inconvenience to you in terms of the time required to complete the survey. There are no direct benefits to you for participating in the study; however, you will be contributing information that will increase knowledge regarding the effects of ADHD medication in ADHD children. I will not be given the list of parent names and I will not know who participates in the study. The only person with access to the information is the school nurse and she will be distributing the survey to eligible parents. Your responses will remain confidential and no information regarding personal identification will be utilized.

I hope to gain information that will assist educators and school nurses to better meet the needs of children who take ADHD medication. There are no compensations to you for participating in the study. You have the right to choose to participate in this study. Please do not write your or your child's name on the survey.

The study has been approved to be conducted in the xxxxx School System by the Superintendent. If you have questions you can call or write the principal investigator, Amy Vest. If you want to talk with a participant advocate other than the investigator, you can write or call the director of our institutional review board, Dr. OraLee Branch (email obranch@cu-portland.edu or call 503-493-6390).

Sincerely,



Amy Vest

Appendix B: Consent Form

Concordia University – Portland Institutional Review Board Approved: 6/7/17; will Expire: 6/8/18

CONSENT FORM

Research Study Title: What are a parent's perceptions of their ADHD child's academics and behavior after taking ADHD medication?

Principal Investigator: Amy Vest

Research Institution: Concordia University-Portland

Faculty Advisor: Dr. Brandy Kamm

Purpose and what you will be doing:

The purpose is to determine your perceptions of your child's ADHD medication on their academics and behavior. Approximately 72 volunteers are expected. No one will be paid to be in the study. Enrollment will begin May 15, 2017 and end on May 24, 2017. To be in the study, you will complete a NICHQ Vanderbilt ADHD Parent Rating Scale which includes 45 Likert survey questions related to the characteristics of ADHD and return the Likert survey to your child's school. It should take no more than twenty minutes to complete this survey.

Risks:

You may experience discomfort about providing personal information concerning your child. There is some inconvenience to you in terms of the time required to complete the survey. Your information will be protected and you should not write your name or your child's name on the survey. Any information you provide on the survey will be kept securely locked inside the filing cabinet in my classroom. When I look at the data, none of the data will have your name or

identifying information. You will not be identified in any public reports. Your information will be kept private at all times and then all study documents will be destroyed 3 years after we conclude this study.

Benefits:

Information you provide will help the researcher determine your perceptions of the impacts of medication on your child's academics and behavior. You will be contributing information that will increase knowledge regarding the effects of ADHD medication in ADHD children.

Confidentiality:

This information will not be distributed to any other agency and will be kept private and confidential.

Right to Withdraw:

Your participation is greatly appreciated, but we acknowledge that the questions I am asking are personal in nature. You are free at any point to choose to stop the study. You may skip any questions you do not wish to answer. This study is not required and there is no penalty for not participating. If at any time, you experience a negative emotion from answering the questions, you can stop taking the survey and conclude your participation in the study.

Contact Information:

You can make a copy of this consent form. If you have questions you can talk to or write the principal investigator, Amy Vest. If you want to talk with a participant advocate other than the investigator, you can write or call the director of our institutional review board, Dr. OraLee Branch (email obranch@cu-portland.edu or call 503-493-6390).

Your Statement of Consent:

I have read the above information. I asked questions if I had them.

☐ Check the box if you volunteer your consent for this study.

Amy Vest 4/30/2017

Investigator Name Date

Amy Vest

4/30/2017

Investigator Signature Date

Investigator: Amy Vest;
c/o: Professor Dr. Brandy Kamm; Concordia University – Portland
2811 NE Holman Street

Portland, Oregon 97221

Appendix C: Approval Letter

DATE:	June 16, 2017
TO:	Amy Vest, EDD
FROM:	Concordia University - Portland IRB (CU IRB)
PROJECT TITLE:	[1070022-1] Consent Form What are a parent's perceptions of their ADHD child's academic performance and behavior before and after taking ADHD medication?
REFERENCE #:	EDD-20170505-Kamm-Vest
SUBMISSION TYPE:	New Project
ACTION:	APPROVED
APPROVAL DATE:	June 12, 2017
EXPIRATION DATE:	June 8, 2018
REVIEW TYPE:	Full Committee Review

Thank you for your submission of New Project materials for this project. The Concordia University Portland IRB (CU IRB) has APPROVED your submission. This approval is based on an appropriate risk/ benefit ratio. All research must be conducted in accordance with this approved submission.

Your project includes research that will be conducted within an institution that is not Concordia University. As such, you need to have their permission to conduct research. You are responsible for contacting and following the procedures and policies of Concordia University

and the other institution where you conduct research. You cannot begin recruitment or collection of data within that institution until you receive approval from that institution.

This submission has received review based on the applicable federal regulations.

You have been approved to enroll participants without requiring written documentation of the participant's consent. The policy of written informed consent was waived because 1) this is a minimum risk study, 2) the largest risk in conducting the study is in collection of their name or other identifying information within the consent form process itself, and 3) there are other methods proposed that demonstrate the researcher will obtain non-written consent. Instead of written documentation of consent, you will obtain informal consent using a non-person-specific method. Even with a waiver for written documented consent, participants must be informed volunteers. You are responsible for communicating, from the beginning to the end of the study, that participation is voluntary.

Please note that any revision to previously approved materials must be approved by this committee prior to initiation. The form needed to request a revision is called a Modification Request Form, which is available at www.cu-portland.edu/IRB/Forms.

All UNANTICIPATED PROBLEMS involving risks to subjects or others (UPIRSOs) and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office. Please email the CU IRB Director directly, at obranch@cu-portland.edu, if you have an unanticipated problem or other such urgent question or report.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

This project requires continuing review from the CU IRB on an annual basis. Please use the appropriate forms for this procedure. Your documentation for continuing review must be

received with sufficient time for review and continued approval before the expiration date of July 8, 2018.

You must submit a close-out report at the expiration of your project or upon completion of your project. The Close-out Report Form is available at www.cu-portland.edu/IRB/Forms.

Please note that all research records must be retained for a minimum of three years after the completion of the project.

If you have any questions, please contact Dr. OraLee Branch at 503-493-6390 or irb@cuportland.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Concordia University - Portland IRB (CU IRB)'s records. June 16, 2017

Appendix D: Pre-Test Parent Survey

VANDERBILT ADHD PARENT RATING SCALE

Survey Part 1: Pre Test

For confidentiality purposes, do not write your name or your child's name on this survey.

Directions: I am conducting research to determine how you perceive the ADHD medication your child is taking affects their behavior and academic performance. Please rate your child in the context of what is appropriate for the age of your child. Please answer the questions by rating your child's academic performance and behavior <u>while he or she is not taking medication</u> for ADHD/ADD. Circle the correct answer below:

1. How long has your child been on medication? 6 months to 1 year 1-3 years 3-5 years More than 6 years

2. How often does your child take the medication? Morning only Afternoon only Morning & Afternoon Morning & at Bedtime

	Never	Occasionally	Often	Very Often
Behavior				
3. Does not pay attention to details or makes careless mistakes with, for example, homework	0	1	2	3
4. Has difficulty keeping attention to what needs to be done	0	1	2	3
3. Does not seem to listen when spoken to directly	0	1	2	3
6. Does not follow through when given directions and fails to finish activities (not due to refusal or failure to understand)	0	1	2	3
7. Has difficulty organizing tasks and activities	0	1	2	3
8. Avoids, dislikes, or does not want to start tasks that require ongoing mental effort	0	1	2	3
9. Loses things necessary for tasks or activities (toys, assignments, pencils, or books)	0	1	2	3
10. Is easily distracted by noises or other stimuli	0	1	2	3
11. Is forgetful in daily activities	0	1	2	3
12. Fidgets with hands or feet or squirms in seat	0	1	2	3
13. Leaves seat when remaining seated is expected	0	1	2	3
14. Runs about or climbs too much when remaining seated is expected	0	1	2	3
15. Has difficulty playing or beginning quiet play activities	0	1	2	3
16. Is "on the go" or often acts as if "driven by a motor"	0	1	2	3
17. Talks too much	0	1	2	3
18. Blurts out answers before questions have been Completed	0	1	2	3
19. Has difficulty waiting his or her turn	0	1	2	3
20. Interrupts or intrudes in on others' conversations	0	1	2	3

and/or activities					
Performance	**Excellent**	**Above Average**	**Average**	**Somewhat of a Problem**	**Problematic**
21. Overall school performance	1	2	3	4	5
22. Reading	1	2	3	4	5
23. Writing	1	2	3	4	5
24. Mathematics	1	2	3	4	5
25. Relationship with parents	1	2	3	4	5
26. Relationship with siblings	1	2	3	4	5
27. Relationship with peers	1	2	3	4	5
28. Participation in organized activities (eg, teams)	1	2	3	4	5

Appendix E: Post-Test Parent Survey

VANDERBILT ADHD PARENT RATING SCALE

Survey Part 2: Post Test

For confidentiality purposes, do not write your name or your child's name on this survey.

Directions: I am conducting research to determine how you perceive the ADHD medication your child is taking affects their behavior and academic performance. Please rate your child in the context of what is appropriate for the age of your child. Please answer the questions by rating your child's academic performance and behavior <u>while he or she is taking medication</u> for ADHD/ADD. Circle the correct answer below:

1. How long has your child been on medication? 6 months to 1 year 1-3 years 3-5 years More than 6 years

2. How often does your child take the medication? Morning only Afternoon only Morning & Afternoon Morning & at Bedtime

	Never	Occasionally	Often	Very Often
Behavior				
3. Does not pay attention to details or makes careless mistakes with, for example, homework	0	1	2	3
4. Has difficulty keeping attention to what needs to be done	0	1	2	3
5. Does not seem to listen when spoken to directly	0	1	2	3
6. Does not follow through when given directions and fails to finish activities (not due to refusal or failure to understand)	0	1	2	3
7. Has difficulty organizing tasks and activities	0	1	2	3
8. Avoids, dislikes, or does not want to start tasks that require ongoing mental effort	0	1	2	3
9. Loses things necessary for tasks or activities (toys, assignments, pencils, or books)	0	1	2	3
10. Is easily distracted by noises or other stimuli	0	1	2	3
11. Is forgetful in daily activities	0	1	2	3
12. Fidgets with hands or feet or squirms in seat	0	1	2	3
13. Leaves seat when remaining seated is expected	0	1	2	3
14. Runs about or climbs too much when remaining seated is expected	0	1	2	3
15. Has difficulty playing or beginning quiet play activities	0	1	2	3
16. Is "on the go" or often acts as if "driven by a motor"	0	1	2	3
17. Talks too much	0	1	2	3
18. Blurts out answers before questions have been Completed	0	1	2	3

19. Has difficulty waiting his or her turn	0		1	2	3
20. Interrupts or intrudes in on others' conversations and/or activities	0		1	2	3

Performance	**Excellent**	**Above Average**	**Average**	**Somewhat of a Problem**	**Problematic**
21. Overall school performance	1	2	3	4	5
22. Reading	1	2	3	4	5
23. Writing	1	2	3	4	5
24. Mathematics	1	2	3	4	5
25. Relationship with parents	1	2	3	4	5
26. Relationship with siblings	1	2	3	4	5
27. Relationship with peers	1	2	3	4	5
28. Participation in organized activities (eg, teams)	1	2	3	4	5

Please rate your perception of how the medication affects your child's academics and behavior overall.

		Excellent	Above Average	Average	Somewhat of a Problem	Problematic
29.	Overall improvements of academics while on medication.	1	2	3	4	5
30.	Overall improvements of behavior while on medication.	1	2	3	4	5

31.	How long has your child has been on medication?	6 months to 1 year	1-3 years	3-5 years	More than 6 years
32.	How often does your child take the medication?	Morning only	Afternoon only	Morning & Afternoon	Morning & at Bedtime
33.	What days of the week does your child take the medication?	Weekdays only	7 days a week	Only on weekends	Daily except holidays

Appendix F: Statement of Original Work

I attest that:

1. I have read, understood, and complied with all aspects of the Concordia University- Portland Academic Integrity Policy during the development and writing of this dissertation.
2. Where information and/or materials from outside sources has been used in the production of this dissertation, all information and/or materials from outside sources has been properly referenced and all permissions required for use of the information and/or materials have been obtained, in accordance with research standards outlined in the *Publication Manual of The American Psychological Association*

Digital Signature

Amy Vest

Name (Typed)

12/5/2017

Date