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ADHD, Prescribed Medication, and its Effect in the Classroom and on Individuals

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Abstract

ADHD is one of the fastest growing diagnoses in America. With a growing diagnosis comes a growing rate of prescriptions to alleviate the symptoms associated with ADHD. This prescription medication can be seen as a quick fix in order to create proper student behaviors within the classroom. This observational case study was completed to see whether or not students who are on prescription medication for ADHD behaviorally outperformed those students who are not on prescription medication for ADHD. Unaware that they were being observed, students were monitored over eight categories throughout two class periods during the day. Research shows that the student who was on prescription medication behaviorally outperformed those students who were not on prescription medication. However, the students not on prescription medication did not fall too far behind. These results show that medication may not be necessary for all students to function well within the classroom. This is important research to share with families and teachers in order to best find the ways to suit the students' needs aside from medication.

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ADHD, Prescribed Medication, and its Effect in the Classroom and on Individuals

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Abstract

ADHD is one of the fastest growing diagnoses in America. With a growing diagnosis comes a growing rate of prescriptions to alleviate the symptoms associated with ADHD. This prescription medication can be seen as a quick fix in order to create proper student behaviors within the classroom. This observational case study was completed to see whether or not students who are on prescription medication for ADHD behaviorally outperformed those students who are not on prescription medication for ADHD. Unaware that they were being observed, students were monitored over eight categories throughout two class periods during the day. Research shows that the student who was on prescription medication behaviorally outperformed those students who were not on prescription medication. However, the students not on prescription medication did not fall too far behind. These results show that medication may not be necessary for all students to function well within the classroom. This is important research to share with families and teachers in order to best find the ways to suit the students' needs aside from medication.

ADHD, Prescribed Medication, and its Effect in the Classroom and on Individuals

Students with ADHD often have a hard time focusing in the classroom, being prepared, and being able to stay on task during activities to complete their work. Students who are prescribed medication for ADHD and take it regularly, combat these traits and are able to perform at their highest level in the classroom and be a productive student. Students who are not prescribed medication, or are but do not take it, could be at risk for struggling within the classroom. Struggling can come in many forms within the classroom, from needing simple reminders and time spent on task, to class disruptions; students can flounder. Due to this difficulty within the classroom and not being able to focus, their understanding of content, work productivity, and final product can suffer. In this research study, the work ethic of students with ADHD who are prescribed medication and the work ethic of those students with ADHD who do not take medicine will be analyzed. The purpose of finding a difference between the two groups of students is to see whether or not their behavior and work ethic suffers from not being on medication and if so, what strategies can be employed to help them stay focused and become a productive member in their classroom.

In the research study, I observed four students in a 12:1:1 setting in a special education classroom in upstate New York. The four students who are a ten year old male (Student 1), an eleven year old female (Student 2), an eleven year old male (Student 3), and a ten year old male (Student 4) have ADHD. One out of the three students, Student 3, currently is on prescription medication. Being able to compare these students behavior within the classroom, productivity levels, and on task behavior showed the difference between the student who is on medication and those who are not. I am currently a practicum student in the classroom and I collaborate with the

special education teacher. I offer assistance where needed and help plan lessons and observe students.

I received permission from the special education teacher to complete this observational case study and compare the data. My role in this study was to observe the students and take note of several different characteristics to later analyze and see whether or not the students on medication were outperforming those who were not on medication. The characteristics studied were: attendance, punctuality, preparedness, number of class interruptions, number of times the student talked to friends, number of on task reminders, smooth transitions, and work completed. After coming to my findings, I shared the data with the special education teacher. Together, we discussed different techniques that could be employed to help students who are not performing well stay focused and complete their work and students who are performing well and staying focused continue to perform at this rate.

The results of this study illustrate that the one student who was on medication for ADHD outperformed those who were not on prescribed medication for ADHD within the classroom. Through all of the categories observed, student three, who is on medication for ADHD, had the best results out of the other students being observed and therefore shows that his medication may help him focus and behave properly within the classroom. The special education teacher uses behavior management strategies that have positive effects upon the students and therefore these methods should be continued to be used within the classroom in order to ensure the most positive behavior possible for all students. Communication of these findings should be discussed between the general and special education teachers in order to ensure that all students are behaving to the best of their ability within the classroom and to make sure that the methods that work for those students are being used.

Affecting nearly 12 million American children, Attention-Hyperactivity Deficit Disorder is one of the most prevalent diagnoses made in school-age children (Stolzer, 2012) and its commonness is only continuing to grow. As stated by Stolzer, ADHD was non-existent from the 1600s-1960s. It was only in the 1970s that a behavioral condition called “hyperactivity disorder” was identified in 2,000 American children (Stolzer, 2012). Fast-forwarding a few years, from 1990-1995, the number of children and adolescents diagnosed in the United States rose from 950,000 to over 2.3 million and doubled over the following five years (Mazza, 2014). Currently, in the 21st century, it’s estimated that eight to ten million American children are formally diagnosed with attention-deficit hyperactivity disorder (Stolzer, 2009). Along with the rise in diagnoses, a rise in medication to help “fix” this condition was prescribed. The production of the prominent drug prescribed, Ritalin, increased in the United States 1700% in the last 15 years of the twentieth century (Mazza, 2014). There are many theories as to why this illness is on the rise and why it is so quick to be diagnosed. In order to understand why it is so commonly diagnosed, one must first understand the illness itself.

Attention-Deficit Hyperactivity Disorder, as defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR), is a “persistent pattern of inattention or hyperactivity-impulsivity that is more frequently displayed and more severe than is typically observed in individuals at a comparable level of development” (Stolzer, 2009 p. 5). These symptoms of inattention or hyperactivity must be displayed in two or more settings and there must be some form of evidence that these factors interfere with the child’s social or academic functioning (Stolzer, 2009). Symptoms of ADHD become most clearly seen in the classroom. Mannerisms such as “careless mistakes in schoolwork, messy or incomplete assignments, failure to pay attention, failure to follow instructions, lack of organizational skills, lost or disorganized

materials, and being easily distracted by extraneous stimuli” (Stolzer, 2009 p. 5) make the classroom environment a stressful one for the individual, teacher, and fellow classmates.

Children who display symptoms of hyperactivity always seem like they’re “on the go,” they fidget, squirm in their seat, act restless, talk excessively, run, climb, and they are unable to sit still when instructed to (Stolzer, 2009).

In environments where sustained attention is required, there is a sedentary activity, monotonous or repetitive assignments are given, or there is boring or mundane instruction, the behaviors associated with ADHD worsen (Stolzer, 2009). However, on the opposite end of the spectrum, symptoms are suspended when any of these five themes are present: the child is receiving frequent rewards for appropriate behavior, the child is under close supervision, the child is in a novel setting, the child is engaged in interesting activities, or the child is in a one-on-one situation with an adult (Stolzer, 2009). With the strain that ADHD puts on the child in an environment that he/she spends seven hours a day, five days a week in, fixing, or at least lessening the symptoms only seems logical.

According to Vaughan, Roberts, and Needelman, the fix for the symptoms of ADHD is medication.

“In fact, more than 90% of all children diagnosed with ADHD will receive some form of medication as a treatment regimen (Vaughan, Roberts, & Needelman, 2009 p. 847).”

Ryan states that there are three major lines of medication commonly used for treatment of ADHD: stimulants, antidepressants, and antihypertensives (Ryan, Katsiyannis, & Hughes, 2011).

Stimulants have a high response rate and are generally the first prescribed. They work by “stimulating the central nervous system (CNS), which, in turn, heightens an individual’s energy and alertness” (Ryan, et al., 2011 p. 53). One of the main benefits of using stimulants as

opposed to the other two other medications is that the effects of stimulants are seen instantly as opposed to sometimes weeks with the other medications. In regards to a stimulant's effectiveness, approximately two out of every three individuals prescribed a stimulant medication respond (Vaughan, et al., 2009). One of the most popular stimulants prescribed is methylphenidate, more commonly known as Ritalin. In a study done by LeFever, Dawson, and Morrow, approximately 90% of children who receive a stimulant medication receive Ritalin (LeFever, Dawson, & Morrow, 1999), and as Mazza puts it, Ritalin is marketed as "an inexpensive and safe quick fix" (Mazza, 2014 p. 16). Not only is methylphenidate the most commonly prescribed stimulant, but the number of prescriptions written, distribution of, and ADHD patient visits have increased three fold to six fold from 1990-1999 (LeFever, et al., 1999). With effects put in place in as little as 15 minutes and effects lasting between four to 12 hours, it's no wonder that this medication is the most commonly prescribed (Ryan, et al., 2011).

Antidepressants are a second line of attack when the patient is unresponsive to stimulants or experiences adverse side effects (Ryan, et al., 2011). When an individual takes an antidepressant, their effects of the medication can begin to be seen in as little as one day, and the effects can continue to improve for up to two months (Ryan, et al., 2011).

Antihypertensives are another form of medication that are prescribed to help with the effects of ADHD. At times, they can be prescribed alongside stimulant medications to assist when the effects of the stimulant medication have worn off and the traits of ADHD are more prevalent. One of the main reason medication is taken when an individual is diagnosed with ADHD is to help lessen the traits of the disorder.

When an individual is prescribed medication for his or her ADHD, parents and teachers have described an increase in his or her attention span, an increase in his or her ability to control

his or her impulses, a decrease in hyperactive behaviors (Ryan, et al., 2011), increases in compliance, and an increase in his or her on task behavior (Vaughan, et al., 2009). In Ryan's paper, Medication Treatment for Attention-Deficit Hyperactivity Disorder, he states a study that was completed and the academic benefits that were noted from students with ADHD taking a prescribed medication. His findings were as follows:

Ryan, Reid, Epstein, Ellis, and Evans reviewed 42 studies that investigated the effects of pharmacological interventions on academic functioning for 1,668 students. The authors found the majority (60%) of studies reported medication treatment had an overall positive effect on student academic performance across a variety of academic subjects, including history, math, reading, and writing. (Ryan, et al., 2011 p. 55)

When teachers state that, "93% of teachers reported having at least one child diagnosed with ADHD in their classroom in a two year period" (Vaughan, et al., 2009 p. 852) the positive effects given by medication are extremely beneficial in a classroom setting. While the benefits from the medication in the classroom are helpful to the individual, the teacher, and his or her peers, the side effects of the medication create pause.

The level of the side effects from a prescribed medication to help treat the symptoms of ADHD is lengthy. From physical symptoms, behavioral changes, and severe reactions, the side effect to one individual can be devastating.

Some physical side effects from a stimulant and antidepressant medication are blurred vision, fever, headache, irritability, loss of appetite, nervousness, trouble sleeping, and weight loss. Not only are side effects based on the type of medication given, but also the individual's age, height, weight, and genetic makeup (Ryan, et al., 2011). Antihypertensive medication have physical symptoms such as dizziness, drowsiness, lightheadedness, tiredness, and weakness

(Ryan, et al., 2011). Stolzer (2012) states that stimulant medications can produce seizures, agitation, confusion and disorientation. Davis-Berman and Pestello (2010) noted in their study that individuals stated feelings of sleep problems, weight loss, and irritability. Celeste, an individual in their study disclosed,

I know that I lost a lot of weight in the first grade, and I wasn't eating and I remember the other little kids would make fun of me because I wasn't eating...My mom would pick me up and I would be so grumpy and that was just not me, and I think my appetite got even worse. I think in the eighth grade I looked like Anne Frank

(Davis-Berman, et al., 2010 p. 488).

While the physical symptoms may be troubling to the individual, the behavioral changes can be even worse.

As stated by Larissa in Davis-Berman and Pestello's study:

It really changed who I am. I'm a fun person who, yes school is extremely important, but so is the social aspect of school. Basically, when I was on medication for ADD, I didn't want to talk to my friends, I just wanted to do my homework

(Davis-Berman, et al., 2010 p. 488).

As far as behavioral changes go, while on their medication, individuals can experience changes in their own personality. Many felt that while the medication increased their ability to focus, it decreased their social skills and interests. Along with an increase in these areas, individuals felt that their former friendliness was disguised by their medication and they felt very different and unlike themselves (Davis-Berman, et al., 2010). Celeste stated,

I didn't like the fact that it (medication) made me really quiet. I was talkative and outgoing, and then when I started taking it I was really quiet. It wasn't until weekends when I wasn't taking it that we realized I had a personality.

(Davis-Berman, et al., 2010 p. 488)

Feeling like this can be very troublesome to individuals “who are still growing and developing physically, psychologically, and socially” (Davis-Berman, et al., 2010 p. 488) and trying to figure out who they are and where they fit in. While trying to figure out them self as an individual, he or she may experience social isolation, personality changes, apathy, sadness, and depression (Stolzer, 2012), which can only make it harder to figure out who they are. Another adverse side effect of the medication is once the medication begins to wear off, the individual can rebound, which will contribute to the individuals irritability and moodiness (Davis-Berman, et al., 2010).

Not only is the child at risk for physical, and behavioral side effects, but they also may struggle with their self image. In the study done by Davis-Berman and Pestello (2010), some individuals who had taken medication for ADHD stated that they were unable to separate themselves from negative statements that they had heard about the disorder. The study was unclear as to whether the feelings were in response to the disorder itself, being medicated for the disorder, or a possible combination of both (Davis-Berman, et al., 2010). The study also showed that individuals that received medication for their disorder reported mixed emotions about themselves. They felt that they should be able to deal with their emotional problems themselves and not rely on medication, and the medication was a sign of weakness (Davis-Berman, et al., 2010). In response to feeling the need to not rely on medication, many individuals would stop taking their medication on the weekends and during summer breaks and vacations, also called a

“drug holiday.” This led them to realize that they only needed the medication to be successful in school and not for every day life (Davis-Berman, et al., 2010). This could lead to future frustrations when needing to go back on the medication and more possible cases of rebounding. As stated by Stolzer (2012), individuals who are prescribed stimulant medication are at a greater risk of later developing emotional and social problems, for example, difficulty with peers, depression, and low self esteem. Additionally, those diagnosed with ADHD fall behind their non-diagnosed peers in their social skills because their interpersonal interactions, such as cue identification and self regulation lag (Stolzer, 2012).

McConaughy, Volpe, Antshel, Gordon, and Eiraldi (2011) discussed the social impairments that students with ADHD face. They stated that children with ADHD are more rejected by their peers, they tend to be more passive and neglected, and tend to be bullied or become bullies themselves (McConaughy, Volpe, Antshel, Gordon, Eiraldi, 2011). Of the physical, behavioral, self image, and social issues associated with ADHD medication, there are some individuals who experience these effects more than others. In studies done by LeFever, Dawson, and Morrow (1999) and McConaughy, Volpe, Antshel, Gordon, and Eiraldi (2011), we are able to see which individuals experience ADHD more.

In regards to age, gender, and race, the number of students receiving ADHD medication shows a disparity in each. In a study done by LeFever (1999), the amount of children receiving medication for ADHD in two different cities were compared. The study considered two cities in South-Eastern Virginia and the student population enrolled in grades two through five. In order to determine whether or not an individual’s age played a role in whether or not they received ADHD medication, the children were determined as young for grade, expected age, or old for grade. The expected age for grade was determined based on the assumption that the child began

kindergarten at age five, entered the first grade at age six, and so on. Young for grade was determined by whether or not the student was a year or more below the expected age for his or her grade, and old for grade was determined by whether or not the student was a year or more above the expected age for his or her grade (LeFever, 1999). When looking at the results for age, young for grade students and old for grade students had the highest percentages to receive medication. When looking at the results for gender, boys were three times as likely to receive medication than girls. In regards to race, White students were twice as likely to receive medication for ADHD as Black students were. To support these findings, McConaughy, Volpe, Antshel, Gordon, and Eiraldi (2011) also completed a study which showed similar findings. Their male population diagnosed with ADHD was found at 72% while their diagnosed female population was at 28% (McConaughy, et al. 2011). Their study also focused on the ethnicity of students showing that 68% of White students were diagnosed with ADHD in comparison to the 24% of Blacks (McConaughy, et al. 2011). For these children that are diagnosed with ADHD and receive medication, there is a possibility for medication to be used in a negative aspect instead of what it is intended for.

As previously stated, the rebound effect that can be associated with a stimulant drug prescribed for ADHD, can cause individuals to become addicted to the drug (Davis-Berman, et al. 2010). Rebounding happens when the stimulant drug wears off of the individual taking it, therefore, irritability and moodiness can increase since there is no constant drug to keep everything stabilized in the body's system (Davis-Berman, et al. 2010). Although some users who have been prescribed the stimulant drug themselves may become addicted to the drug, the addiction and abuse factor normally follows older students and in most cases, individuals which the drug was not prescribed to. Davis-Berman and Pestello (2010) discussed with the college

age respondents in their study the cases of abuse that follows the stimulant drug, Ritalin. Many respondents noted that most people who were not prescribed the drug wanted the stimulant for recreational use and many of the respondents were approached by non-diagnosed individuals asking to buy their medication. Many individuals felt reluctant to tell others that they were on medication simply for the fact of not wanting to be bothered to be asked for it, like Emma who stated, “people actually wanted to buy it off of me. So, when that happened, I was like I’m not telling anyone I’m on this” (Davis-Berman, et al., 2010 p. 489). Some individuals realized on their own it was in their better interest to not make it known to others that they were prescribed a stimulant medication, and for others, their doctors explained it to them, “Margaret’s doctor also warned her to be discrete about her medication use, ‘just because there are pressures that she has seen other patients have that were in college, so she didn’t think that it would be a good idea to talk about it’” (Davis-Berman, et al., 2010 p. 489). The abuse of ADHD medications, whether by prescribed patient or non-diagnosed individual, is a problem which currently does not have a solution. Some question if the caregivers, such as parents and teachers, could have better training or a better understanding of the diagnosis to better help individuals who are struggling with the illness and possibly help prevent the abuse of the medication through better monitoring and distribution.

A study completed by Ahmed, Borst, Wei Yong, and Aslani focused on whether or not parents of children diagnosed with ADHD received adequate information about the disorder and the possible treatments. In order to complete the study, three focus groups were conducted, each lasted one to one and a half hours. During these focus groups, the conversations held were audio-recorded and then further analyzed and categorized into themes (Ahmed, Borst, Wei Yong, Aslani, 2014). The parents were questioned on their ADHD-related knowledge pre and

post diagnosis, the information sources that the parents accessed, whether or not the parents information needs were met post-diagnosis, and, the parents' views about different types of strategies that could be used to meet their needs (Ahmed, et al., 2014). One of the study's main focuses was treatment options for the child and how the parents came about their decision. As stated by Ahmed (2014), "the strongest evidence for improvement of ADHD symptoms is presented for prescription medications, which are effective for approximately 80% of users" (p. 662). Along with the medication however comes a negative reputation presented by the media that, "raises concerns about side effects, potential for addiction, and questioning the appropriateness of medicating young children with agents" (Ahmed, et al., 2014, p. 662). It is due to these stigmas that, "Parents of affected children are consequently faced with a dilemma regarding whether or not to medicate their child" (Ahmed, et al., 2014 p. 662). Ahmed (2014) states that these negative connotations associated with the medication are the exact reasons as to why the parents need to have valid sources of information to go off of in order to make their decision. While conducting the study, Ahmed noticed three themes: the knowledge the parents had of ADHD, the information sources the parents had, and the informational needs of the parents (Ahmed, et al., 2014).

In regards to the knowledge the parents had prior to their child's diagnosis, it seemed to be limited, and if they did have information, it was rather negative. Most parents stated that they had heard about ADHD and the drug associated with it, Ritalin, stating, "I've mainly heard about bad effects of the drugs and how children are effected" (Ahmed, et al., 2014 p. 664). However, upon their child's diagnosis, the parents knowledge of ADHD improved based on the research they completed themselves.

When looking at the sources that the parents were getting their information from, most seemed reliable. For the most part, parents were receiving their information from their pediatrician or child psychiatrist. Some other sources were books or the child's school (Ahmed, et al., 2014). Yet, even after all of the research that they completed, they still felt as though it was not enough, "I've done enough research to know that there is not enough in the information" (Ahmed, et al., 2014 p. 664). After their research was completed, some parents stated that they had additional information needs.

One of the main ways that parents wanted their information was through individuals who were going through the same thing, not just textbook terms that didn't seem relatable (Ahmed, et al., 2014). Parents expressed an interest in support groups to discuss the things they were going through and hear things from others as well. In conjunction with the support groups of families in general, parents wanted to hear from individual adults who were diagnosed with ADHD growing up to hear about how their life had been affected by their medication in both positive and negative aspects (Ahmed, et al., 2014). As confused as parents felt while making the ultimate decision as to whether or not their child would become medicated for their ADHD, the professionals that educate these children and spend several hours a day with these children need information, sources, and possible training as well.

Although physicians are ultimately responsible for the prescription and decided dosage of medication, teachers are able to offer some feedback to parents or physicians with the possible side effects and usage in the classroom since they are spending the majority of the day with this child who is on the medication. Communication between teachers, parents, and physicians about this child, their behaviors, their medication, and their performance in school are vital to the child's success in the classroom and at home. Ryan (2011) emphasizes the importance in the

collaboration between parents, physicians, and educators in order to maximize the benefits of the medication. “It is important that monitoring occurs prior to the administration of medications, to ensure preexisting behaviors are not mistaken for side effects. Students should also be monitored to ensure that they are actually taking the medication at the proper times and dosage levels” (Ryan, et al., 2011 p. 57). Along with monitoring and collaboration, Ryan also states that there should be documentation made for the medication being taken and teachers should receive proper training.

According to Ryan, in order to enhance the safety of the medication, the child’s teachers should receive a list of the medications side effects, as well as the physician’s orders on the correct dosage. Along with the side effects listed, teachers should also document dosage given, times and dates, and the individual who administered the medication (Ryan, et al., 2011). By documenting the medication given to the child, the teacher can monitor, and be able to report to parents and physicians. Ryan also suggests, “All personnel involved in medication administration must also be properly trained. Such training may be provided by the school nurse and must include areas pertaining to safety issues, confidentiality, administration procedures/documentation, and emergency procedures” (Ryan, et al., 2011, p. 58). By having all staff involved with this child who is taking the medication go through training, each staff member will be aware of the expectations for themselves and what to expect in any given situation.

Ryan also states that the training each staff member will go through will also address the legal considerations that pertain to the administration of medication to students. The legality is related to the Individuals with Disabilities Education Act of 2004, following the parameters of ensuring access to education for students qualified under the act, and Section 504 of the

Rehabilitation Act of 1973. Along with these two Acts, staff must also be made aware of the Family Education Rights and Privacy Act of 1974, and the Health Insurance Portability and Accountability Act (Ryan, et al., 2011). By making sure that all staff is properly trained, able to communicate and relay information well and correctly with other staff, and is aware of all the legal considerations, there will be great benefits to all students, staff, physicians and parents.

ADHD is a complex diagnosis in which parents or teachers may feel lost and overwhelmed. There are many ways in which both teachers and parents can help the diagnosed child succeed and be the best they can be in their given environment. Each child's needs vary case by case, medication may not always be the answer. Hoffman (2009) discussed this in the study completed that focused on the effectiveness of medication, behavioral, and a combination of both medical and behavioral treatments for ADHD. The study, called the MTA, involved nearly 600 children who were receiving "state-of-the-art treatments at the time" (Hoffman, 2009, p. 34). All of these children were subject to receive intense medication treatment, intense behavioral treatment or a combination of both. The results showed that the combination group showed the greatest improvements, and the medication group showed the second highest improvements. Although medication is the quickest and easiest way to treat ADHD, the disorder is multifaceted, therefore some children may need other forms of treatment as well. The behavioral intervention treatments which were involved in the combination group include, "behavioral parent training, social skills programs, and school behavioral interventions either for the whole school or within the classroom" (Hoffman, 2009, p. 35).

The behavioral parent training is a tool that can assist parents with their child's ADHD. There are several key components to behavioral parent training, "attending to and noticing good behaviors; ability for the child to 'earn' positive rewards; clear and consistent commands;

appropriate rewards and consequences; and instruction in the use of ‘time out’” (Hoffman, 2009, p. 35). Along with behavioral training for parents, and Ryan’s (2011) views on collaboration, there are school management systems that focus on behavioral training and the communication between parents and teachers for the child’s success.

School management systems and behavioral parent training collaborate when they communicate back and forth through daily report cards. The daily report cards are used at school to monitor the problem behavior and goals are set for each period. When a child meets 75% of his or her goals for the day, a reward is given by the parents. The goal setting and reward offered is something that needs to be communicated between the teachers and parents in order to be assured that goals are being met and proper rewards are given. While this report card is mainly used at school, parents can continue its use at home to manage home behaviors with the child. (Hoffman, 2009).

There are many different forms of treatments to assist with ADHD, as well as many different forms of the disorder itself. ADHD is an extremely versatile disorder that affects each individual differently. Prescribing one type of medicine for all diagnosed children will not deliver the same outcome for each child. Each child, parent, teacher, and physician needs to work together in order to determine the course of action best suited for the individual themselves. Some children may benefit best from a form of treatment which has no effect on another child. Writing a script to “solve the problem” isn’t always the answer. Monitoring, communication, and collaboration between all people involved can help benefit everyone connected with the diagnosed child, and the child themselves. By finding what makes each individual tick and what works best for them, there will be a more suitable environment for each child, school

professionals, parents, and physicians, and hopefully a lessening in the diagnosis and prescriptions written for ADHD.

Researcher Stance

I am currently certified in Early Childhood Education, birth through second grade, and Childhood Education, first through sixth grade. I am currently working in a Children's Center where I am the lead teacher in a toddler (1.5 - 3 years old) classroom. I am presently enrolled in a program working towards earning a Master's of Science in Special Education. While I am working towards this certification, I was placed in a 12:1:1 room with fourth through sixth graders where I am conducting my study. In order to understand why I felt so strongly about this subject and conducted this study, I will need to explain my previous experience with the ADHD diagnosis, medication, and my family history.

My younger brother was diagnosed with ADHD in the second grade when he was seven years old. When he was in pre-school, his teachers began to question whether or not he had a hearing problem as they were beginning to notice certain symptoms such as when they called all the kids to circle time he acted as if didn't hear a word and continued to play alone in the sink and didn't seem to even notice that all his friends had left. When he was half way through first grade, his teachers told my parents that they suspected my brother had ADHD and that they believed he should get tested. It wasn't until the second grade that the testing took place. My brother participated in a blind study. For two weeks he was placed on a placebo, and the other two weeks he was placed on Ritalin. The classroom teacher was made aware that this study was taking place and was asked to observe his behavior within the classroom and take notes as to which weeks he seemed more attentive. She was not aware as to which two weeks were which. Upon analyzing her notes, she stated which two weeks my brother was more attentive, and it

turned out to be the two weeks that he was on the Ritalin. These results were communicated with his pediatrician and my parents and it was decided that he had ADHD. For it being diagnosed at such a young age, my mother stated,

You, as a parent, weigh your options. When you do the two week trial and you realize and see the facts of how much better your child is behaving in the classroom on Ritalin, you have to make that decision for them. (4/3/2015)

From that point on, my brother consistently took Ritalin, ten milligrams in the morning and ten milligrams in the afternoon from the school nurse. He only took the medication on school days during the school year. On weekends, school breaks, and summer vacation, he did not take the medication. When he reached seventh grade, he began taking Ritalin LA 20 which is a slow release, long acting medicine. He was placed on this so that he would not have the stigma of going to the nurse's office at lunch to take his second dose of medicine. In eighth grade, this all changed.

When my brother reached eighth grade, he forgot to take his medication for a few days before school. After this, he came home and told my parents that he liked the way he felt without it. He stated that he felt more outgoing, he was able to make new friends, and it was because of these facts that he didn't want to take the medication anymore. He told my parents that when he was on the medication, he didn't feel like himself or feel social at all. My parents let him make the decision to stop taking the medication. Immediately after doing so, his grades plummeted and he continued to struggle all throughout high school. Despite his grades, he refused to try any other medication.

ADHD, as research shows, is highly correlated through genetics. Throughout the whole process of my brother getting tested, my mother realized that my father had shown many of the

same symptoms that my brother was displaying. Symptoms such as not being able to pay attention (or choosing when he'd like to pay attention), and not being able to sit still were strong indicators. Upon making this connection, my father went and got tested. The results showed that he had ADHD. The doctor prescribed him twenty milligrams of Ritalin to be taken twice a day. My father does not take the medication as prescribed. He will only take it if he is going to the gym to play racquetball (an avid player), or if he is going into the office to do paperwork. He stated,

The stuff's like speed. If I take twenty milligrams, like prescribed, I want to grit my teeth and talk a lot, kind of like a happy pill. I don't like to take it every day as prescribed. It's a nice crutch, but once I realize what I'm doing for the day, I base whether or not I will take it off of that. (2015)

My father stated that he doesn't take it as it's prescribed to him because he doesn't like the way it makes him feel. The medication does have its benefits, though, he states,

If I know I'm going to the gym, I'll take ten milligrams on an empty stomach, have a cup of coffee and go to the gym. When I have the medication in my system, I feel like I'm one move ahead of the ball and not chasing it. When I don't take the medication, I'm constantly chasing the ball and looking for it. It really does help me focus, but taking it every day is not for me. (2015)

For my brother and father, it seemed as though medication was very easy for them to obtain and it was a "quick fix" for them. It seemed as though the pill was offered and the problem was solved. I have seen the struggles at home of my brother not wanting to take his medication, and being a completely different person when he did. I have seen the frustrations from my parents when trying to help my brother with his school work and trying to make him want to improve his

grades, and him not wanting anything to do with it. I have seen endless alternatives to the medication, dieting plans, and drinking special tea before bed in order to decrease the need for medication. Being around family members who I have personally seen struggle with this diagnosis, has made me want to help others with their diagnosis and see how their medication affects them academically. Being a teacher, you see a different side of the child that parents see, and not always the whole story as to why the student isn't taking their medication. I am able to have both of these view points and I hope to use what I know to help students.

By choosing this topic to focus on for this study, I hoped to find patterns in students who take their medications, versus those who don't, and possible alternative methods discussed with the special education teacher that she has used. I hoped to see whether or not students who are not on medication or do not take it perform as well as students who do. I wanted to see whether or not the students who were on medication were quieter, less social, and seemed withdrawn in comparison to those students who were not on medication. I hoped to put to use all I have experienced as a sister and a daughter, and all I have learned from my education to help future students.

Methodology

Context

This study took place in a suburban setting school district in New York State. This study was completed in this school because I completed my practicum work in this school. I was placed in a 4-6 grade 12:1:1 classroom. In this classroom, I was able to observe the correct population of students in order to complete this case study. Many students in this classroom

were diagnosed with ADHD and only some are on prescription medication for it which is the main focus of my study.

Participants

There were four students, all in the 5th grade Intermediate age range, participating in this study. There were three boys and one girl who were observed in the case study. The students were referred to and their data tracked as Students 1-4. All of the students have been diagnosed with ADHD among other impairments. Student 1, a ten year old male, has ADHD and is classified as having a learning disability on his IEP. Student 2, an eleven year old female, has ADHD and is classified as having a speech or language impairment on her IEP. She also suffers from extreme anxiety and nervousness. She at times is unsure how to act in social situations and this can affect her classroom behavior. Student 3, an eleven year old male, has ADHD and is classified as having Autism on his IEP. Student 4, a ten year old male, has ADHD and is classified as having an other health impairment on his IEP.

Methods

My role in this study was an observer and an interviewer. I observed four students in my classroom over a period of four weeks. As students went through their day and classroom activities, I recorded on a chart their attendance, punctuality, preparedness, number of class interruptions, number of times they talked to their friends after an initial reminder, the number of times they needed to be reminded to stay on task after an initial reminder, whether or not they had smooth transitions, and whether or not they completed the work they were supposed to after the given class. Through this data collected, I analyzed whether or not the student who was on medication performed better behaviorally than the students who were not on medication and whether or not he had more on task time and was less distracted.

As an interviewer in my study, I interviewed the special education teacher in the classroom. Through this interview, I compared and contrasted the special education teachers views and opinions on medicating for ADHD, if she felt medication was helpful to the students with ADHD, and the consistency and progress of these students.

This case study was designed to determine whether or not students with ADHD perform better behaviorally in the classroom when on medication. By focusing on a select group of students, and a select set of categories while collecting this data over a period of time, the collected observations will be able to show whether or not students on medication for ADHD behaviorally outperform those in their class that are not on medication for ADHD. This study, based on the participant pool, focused on a group of four fifth graders, three of which are male, who have been diagnosed with ADHD.

The data collected in this study was collected over a period of four weeks. The students were observed throughout the two class periods that they are under the instruction of the teacher of whom I am completing my practicum work with. Of the two class periods being observed, one was right before lunch and the other was directly following a lunch period of forty minutes and a recess period of twenty-five minutes. Through a qualitative case study, I was able to collect my data.

Procedures

In order to begin my study I first had to determine which subjects would be observed. I spoke to my cooperating teacher about which students she thought would be valid participants for this study. She looked at their behavior within the classroom and their IEP's to see which students would be the best to observe. Together, we decided on three male students and one

female student. Of the four students, two of the males display behavioral outbursts within the classroom, difficulty focusing and staying on task, and at times a trying time completing their work. The remaining two students, at times, had difficulty focusing and staying on task, however, they did not require as many reminders as the other two students. After I had my participants, I needed a way to collect the data I would be observing.

I created a chart based on the observations the special education teacher had communicated to me. Some of the questions, such as attendance, punctuality, and work completed that were observed required a simple yes or no response. Whereas other categories, such as the number of class interruptions, the number of times reminded to stay on task, and the number of reminders the student needed to stop talking to his or her friends required a tallying procedure. For the tallying, I would tally each time the student needed a reminder from the special education teacher, an aide, or myself. I printed off several of these charts and developed a plan in which I would collect my data.

The students being observed all took fifth grade Math and ELA together under the instruction of the special education teacher with whom I was completing my practicum work. Math, the first class in which the students were observed, took place from 11-12:10 daily, which is the period preceding lunch. ELA, the second class in which the students were observed, took place from 1:10-2:35 daily, which is the period following a forty minute lunch period and a 25 minute recess. It was during these two classes that I collected my data.

While the students were coming into the room, I marked whether or not they were punctual by noting whether or not they were in the classroom, at their desks, and ready to work by the time the class was starting. I marked the students attendance based on whether or not they were in the classroom during the given class period. In order to determine whether or not the

students were prepared for the class, I would note if they had all of their materials for the class they were attending or if they needed to return to their homeroom to gather a missing item such as an agenda, book, or packet they were working on. In terms of class interruptions, I would keep track of when the teacher had reminded them of the behavior they need to be showing within the classroom. After the first reminder, I would start to tally down when the student would cause a disruption that would deter other students from their work, cause other students to laugh, or cause other students to also become off task. When students would talk to their friends out of turn, at inappropriate times, or just to be a class clown, I would mark a tally on the recording chart after their first reminder from the teacher. When I was observing whether or not the student was on task, I would tally each time that the student needed a reminder from the special education teacher, an aide, or myself. Reminders for this could be anything ranging from a brief monologue about the students work, to a quick glance from an adult after which the student would return to their work. Each student in the classroom was aware of what a smooth transition was and what it looked like as it was part of their classroom management plan, and posted in the room. A quiet transition is when the students are quiet, being kind to others, and prepared for their next activity. If a student didn't complete a smooth transition, I would mark which aspects weren't completed and place a yes or no in the chart. And finally, in order to see whether or not the students were completing the assignments they were given in class, I would mark that on the chart as well. If the student did not complete an assignment, I would check to see if they were at least up to a point that keeps them on par with the rest of the class.

By completing this observational chart, I was able to collect the data necessary to analyze and determine whether or not medication for ADHD helps students behaviorally outperform students with ADHD who are not on medication.

Consent

I received consent from the special education teacher in the classroom to observe these students. Since the case study was purely an observation of the students, no consent was needed. The data collected tracked normal everyday classroom experiences throughout the students' days.

Findings and Discussion

The data collected in this case study was observational. While observing the students in the classroom, I used an observation form on which I tallied and took notes of the students' attendance-whether or not they were present, their punctuality-whether or not they were on time, their preparedness-whether or not they had the correct needed materials for the class they were attending. I also tracked the students' number of class interruptions. After the first reminder given by the teacher, I would tally how many times they caused a disruption and needed another reminder. I also observed and tallied the number of times, after the first teacher reminder that the students talked to their friends. I observed whether or not the students seemed to be on task for the class being observed-whether or not they were focused and I tallied the number of reminders they needed to return to the task at hand. I marked whether or not the students were observing the classroom rules of completing a smooth transition in which students are quiet, being kind to others, and prepared. The last category I observed was whether or not the students completed the assignment they had been given for the class, and if completing was not required, if they were up to where they should be on their work. I constructed the data collection tool myself. A total of twelve data charts were completed, five of which were for math, and seven of which were for ELA. These charts were completed during a Math class which happens before

lunch and an ELA class which occurs after lunch. Both of these classes each occur once daily.

This is the chart that was used to collect all of the data:

Category	Student 1	Student 2	Student 3	Student 4
Attendance (Present/Absent)				
Punctual (On time/Late)				
Prepared (Has materials/does not have materials)				
Class Interruptions (One teacher reminder-tally)				
Talked to friends (One teacher reminder-tally)				
On Task (Number of reminders-tally)				
Smooth Transitions (Quiet, Kind to Others, Prepared)				
Work Completed (Assigned work has been completed/where need to be)				

In order to determine whether or not students who are on medication for ADHD perform better behaviorally in the classroom than those who are not on medication for ADHD, the data collected per the twelve charts needs to be analyzed. Each category from the chart will be analyzed per subject, both Math and ELA, in order to make the conclusion as to whether or not ADHD medication affects any of these categories.

Attendance

In terms of the student's attendance, Students one, two, and four were present in each class daily. Student three had one absence. His absence was on the Friday before Spring Break as he was traveling over the break and it was pre-communicated with all of his teachers.

This data shows that all students were in attendance when they were expected to be and the use of medication, during the time observed, did not have an effect on the student's attendance in school.

Punctuality

Regarding the students punctuality, the results were scattered across the two subjects. When analyzing the punctuality data collected for the students during the math class, students one through four were on time consistently for a total of five out of five times observed. However, when analyzing the punctuality data for the ELA class, there was a discrepancy between the students. Student one was late seven out of the seven times observed. Student two was on time seven out of the seven times observed. Student three was on time the six out of the seven times observed, since he was absent once. Student four was late seven out of the seven times observed. The variation between the students punctuality between subjects can be for a number of reasons.

First, math class occurs from 11-12:10 in the day. It is the class preceding lunch. Students are transferring from another class to this classroom. The transition in the hall is not busy, and students are able to get from class to class easily. ELA, however, occurs from 1:10-2:35. This is the class that follows lunch and recess. The students are in lunch until 12:50 and proceed to attend recess from 12:50-1:10. Although the class is set to start at 1:10, the students who attend recess can arrive up to five minutes after that time. The students may just want to keep playing, don't have their materials, or are distracted in the hallway. Students one and four

attend recess daily. Since the weather has begun to change and it is nice enough for the students to go outside, they now have to transition from outside to inside, rather than just walking down the hall from the gymnasium. Not only does the transition make them late but it also becomes a distraction within the classroom. For the days that the ground was wet and muddy, students would often come into the classroom and distract the other students when they had mud on their clothes. Students would ask them things like, what had happened, what they had done outside, who they were playing with, all of which distracted the class from what they should be doing and proved to be a constant distraction throughout class, both to the student who participated in recess and the students who did not.

Second, the students could be arriving late to ELA because it was simply a subject that they do not enjoy, or struggle with. As stated in Student 1's IEP, his strength is math and he thoroughly enjoys it. Attending a class that he knows he enjoys and does well in could be the reason for his punctuality, as opposed to ELA which is not his strong suit. As stated on his IEP, Student 1 struggles with writing and thus has been assigned an iPad for his assistive technology. Student 1 uses speech to text dictating software in which he speaks whatever he wants written down. He is allowed, as per his IEP, to use this software whenever he feels fit in the classroom. For example, the student uses this for spelling tests which he types the answers, worksheets in which he takes a picture of the worksheet and can then speak or type his answers on the lines, or writing assignments in which he speaks or types his thoughts down. Embarrassment for this assistive technology is not a component seeing as how all other students in the classroom are allowed use of computers for typing tasks and it is in others' IEP's as well. Student one and Student four also have a difficulty with reading in which they are both reading below grade level. The frustration with the difficulty in their reading could also be a reason why they do not enjoy

ELA. Student four's IEP also states that he struggles with ELA. His IEP states that he is also reading below grade level and that ELA is a subject where he requires constant reminders and assistance. In Math, however, he tends to be stronger and can complete more of the work on his own and more efficiently. Along with their IEP stating their struggles in ELA, Students one and four also struggle with engaging for longer periods of time.

Third, ELA is one of the longest classes of the day. Having students work and be engaged for an hour and a half is a long period of time, especially for students with attentional issues who are not on medication. For Student one and four who already have attentional issues, knowing that they are going to be in a classroom for an hour and a half, having to do work can seem like a tedious task. Since Math is a shorter class, only an hour and ten minutes, it may seem more plausible for the students to attend the full class. By arriving late, they are already setting back the clock and adjusting their own schedule so that they are only in the classroom for roughly the same time period as math.

When looking at all of the students observed in the category of punctuality, students one and four are not on medication for ADHD, nor have they ever been, and their punctuality within the classroom is effected by that. Student two who was previously on medication for ADHD but is not currently, as per her own choice, arrived on time for both subjects every time, thus her punctuality was not affected by not being on medication. Student three, however, who is on medication for ADHD, and who, at times struggles with both Math and ELA arrived to both subjects, on time, every time for the duration of the observation. Student three shows that medication may help this individual with punctuality for classes.

Preparedness

As previously stated by Stolzer, one of the common mannerisms of ADHD is the lack of organizational skills (Stolzer, 2009). When analyzing the results collected from the students' preparedness, this proved to be true. All students at one point or another were unprepared for Math or ELA. A students' preparedness was decided based upon whether or not they had all of the correct materials with them for the class. If a student needed to leave and return to their homeroom to gather materials, borrow an extra copy from the teacher, or left an item at home they were marked as unprepared. Student one was prepared two out of seven times observed for ELA and three out of five times observed for Math. Student two was prepared seven out of the seven times observed for ELA and five out of five times observed for Math. Student three was prepared six out of the six times observed present in ELA, and four out of the four times observed present in Math. As for student four, he was prepared four out of the seven times observed for ELA, and three out of the five times observed for Math. The reasons for the inconsistencies in preparedness could vary.

Since a lack of organizational skills is a commonality for individuals with ADHD, being unprepared seems to be expected for these students, especially those who are not taking medication. If a student is unable to keep his materials organized, how will he or she know what needs to be brought to class. Student one, and four struggled more in coming to class prepared. They did, however, show an increase in preparedness in Math, which, as previously stated, is a class that they both enjoy and do well in. They both consistently struggled in being prepared for ELA. Student two and student three however, were both prepared for each class, every time. Student two's preparedness could have to do with her anxiety and always being nervous about what others say. By being prepared, she doesn't have to worry about being reprimanded in any way or worry about leaving the class and returning to have missed something. Student three's

preparedness could have to do with the fact that he is medicating himself for ADHD. By medicating, his symptoms are lessened and he is able to function suitably within the classroom. Student three shows that medication may help this individual with his preparedness for classes.

Classroom Interruptions

In order to determine the number of classroom interruptions the student caused, I focused on the number of times the student was reminded that the behavior was inappropriate and was disruptive to their peers, or their peers were driven off task. After the first reminder that the student was given, the tallies were taken. Afterwards, the number of disruptions per class was added together, and divided by the total number of times observed in order to find an average number of interruptions per class, per student.

When ELA was observed, student one and student four each had an average of three classroom disruptions per class, student two and three each had zero classroom interruptions per class. When analyzing the data collected for Math, student one and student four each had an average of two classroom interruptions per class. Student two and student three each had zero classroom interruptions per class.

When looking at these results, it is clear to see that ELA produced more classroom interruptions from student one and student four than Math. This could be related to the previously stated idea that these students enjoy math and perform well in math, as opposed to ELA. Stolzer states that the behavior of students with ADHD worsens when there is sedentary activity or when they are bored, among other things (Stolzer, 2009). During ELA for the time observed, the students engaged in a fifteen minute mini-lesson and then break off into centers in which they do different activities. Each center is monitored by an adult, whether it be a teacher or an aide, who works with the students daily and understands the needs of the different students

and how they best learn. Regardless of how well the adult knows the student, students with ADHD have a hard time sitting still for twenty-five minutes, let alone sitting still for twenty-five minutes for a subject they do not believe they do well in. The increased amount of sedentary activity and the students being bored by the subject, knowing that they aren't going to do well, could increase the number of classroom interruptions they create. Whether these outbursts were for attention, or because they were bored and tired of sitting is unknown.

However, Stolzer also states that when the child is engaged in interesting activities, is placed under close supervision, or receives frequent rewards for appropriate behavior, these behaviors subside (Stolzer, 2009). Math is an interesting subject and activity for students one and four; they both enjoy and do well in math. The sit time for centers in math is also shorter than the sit time for centers in ELA. Not only are the sit times shorter for centers, but the class size is slightly smaller by about three students, having each center contain about three students as opposed to four or five. The smaller group size creates a closer supervision pattern for the students which may help them focus more.

Students also have different behavior management programs implemented within the classroom which equates to rewards for appropriate behavior. As an individual classroom management strategy, students can earn signatures on a chart on their desk, which, when completed the student is allowed to visit the prize box from which they can choose what they'd like to have. There are two students in the classroom, student one and student three, who work to earn plastic coins on their desk. They start off with three coins and their goal is to end with three coins by the end of the class. Repeated redirection and classroom interruption results in a loss of coins, and good behavior allows the student to keep the coins on their desk. A whole class behavior management strategy that is implemented within the classroom encourages

students to work together to earn “poms” which go in a jar. When the jar has been filled, the students have earned free tech time and can use the different forms of technology within the classroom to do as they wish, with certain rules applying. These behavior management systems are applied in both Math and ELA, however, they seem to be more effective in Math.

While student one and student four’s number of classroom interruptions varied day to day, they each averaged a number of three outbursts for ELA and two outbursts for Math. Since student one and student four are both not on medication, their increased number of outbursts when compared to student two and three could be a result of their non-medication. Student two and student three didn’t display any signs of classroom outbursts. Student two’s lack of outbursts could be due to her anxiety. Student three shows that his lack of classroom outbursts could be due to his medication.

Talking to Friends

In order to determine the number of times the student talked to his or her friends, I focused on the number of times the student stopped their work and began talking to their peers regardless of whether or not their peers were listening. If the discussion was related to the class or assignment they were completing and didn’t seem to be affecting the other student they were talking to, or they both didn’t get off task it was not tallied. However, if the student was trying to have a conversation with other students about topics other than the task at hand, it was tallied. After the first reminder that the student was given to stay on task and focus on their work, the tallies were taken. Afterwards, the number of tallies taken over the time observed were added together, and divided by the total number of times observed in order to find an average number of times spent talking to friends per class, per student.

When ELA was observed, student one had an average of four reminders needed per class to stop talking to his peers, student two and student three needed one reminder over the course of the seven times being observed, student four needed an average of two reminders per class to stop talking to his peers. When analyzing the data collected for the number of reminders needed to stop talking to friends during Math, student one needed an average of two reminders per class, student two and three didn't need any reminders for the time observed, and student four needed an average of one reminder to stop talking to his friends per class.

When looking at these results, it is clear to see that during ELA, all of the students needed more reminders than in Math to stop talking with their friends. There could be many different reasons for this. Relating to previously stated ideas, the first reason could be that students one and four each displayed less time talking to their friends in Math because it is a class they do well in and enjoy. The second reason could be that Math is a shorter time period required for all of the students to focus in. The third reason could be that Math class was a shorter time period for data collection, therefore not as much time was spent observing the students as it was in ELA.

When looking at the students differing personalities, their time spent talking to friends could be due in part to how they act socially. Over my time spent observing in the classroom, student one has always been a talkative student. As stated on his IEP, student one has strong social relationships and can relate with whomever he is around. He thoroughly enjoys talking to all of his peers about any given topic whenever he can. Even while a teacher is reminding him to stay focused on his work, that now is not the time to discuss these things and to wait until after class, he continues to discuss his thoughts with his friends. Student one's personality could play a large role in his impulses to talk to his peers.

Student two, as stated on her IEP, suffers from anxiety and has a hard time building social relationships. It is due to her anxiety that her social skills will at times flounder. She is unable to take social contexts and is unsure as to when she should chime in. Student two has taken medication for her ADHD in the past. Her teacher stated that after discussing this with student two's mother, she stopped taking them because she didn't like the way that they made her feel. As stated by McConaughy, Volpe, Antshel, Gordon, and Eiraldi (2011), some common side effects of medicating for ADHD could effect a student's self image and cause social issues for the student. The social issues that her medication could have caused her could have been heightened due to her generalized anxiety. Even though she has discontinued use of her medication for now, her anxiety could still be playing a large role in the fact that over the course of twelve observations conducted by myself, she only needed one reminder to stop talking to her peers.

When analyzing the data for student three, a study completed by Davis-Berman and Pestello has a quote from a student with ADD that could explain why student three also remained so quiet during class time, needing only one reminder over the total of eleven times he was observed. "Basically when I was on medication for ADD, I didn't want to talk to my friends, I just wanted to do my homework" (Davis-Berman, et al., 2010 p. 488). Since student three is on medication for his ADHD, he could be experiencing the same symptoms as stated by this individual. Another student stated, "I didn't like the fact that it (medication) made me really quiet. I was talkative and outgoing, and then when I started taking it I was really quiet" (Davis-Berman, et al., 2010 p. 488). The medication student three is taking could be suppressing his personality and his talkative behavior. While not all medications or children are the same, the side effects for most students, as conducted in the studies previously stated, can range and the

quiet, zombie-like behavior can become more apparent while the student is on medication. Student three's mother is very involved in his schooling and is in constant contact with his teacher. She has tried multiple medications and is satisfied with his current behavior and grades in the classroom. While his grades may be decent and his behavior good within the classroom, he may not be displaying his full personality within the classroom due to his medication.

Student four is also a talkative student who at times can display defiant behavior as stated by his IEP. His IEP states that he enjoys talking to his friends and discussing sports and games he's played. Many tallies collected for student four were in part to his discussions that were off topic. In regards to his defiant behavior, his time spent talking to friends could be in part that he knows that isn't what he is supposed to be doing at the time, so he refuses to listen to the adults. While he is a great student and works hard, when he displays his defiant behavior he is stuck in that behavior for the remainder of the class period.

With all of their personalities and other effects in mind, it is clear that student one and student four had spent more time talking to their friends than student two and student three. While there could be many different factors affecting this, student three's unavailability of communication with his peers during classes could be due to a side effect from his medication.

On Task Reminders

In order to determine the number of times the student strayed from on task behavior, I focused on the number of times the student needed a reminder to return to the task at hand. If the students were able to redirect themselves, they were not tallied. However, if the student needed a reminder to return to task, for example using iPads, playing in their desk, not paying attention, not focusing, doing activities other than the task at hand, a tally was marked. After the first reminder that the student was given to stay on task and focus on their work, the tallies were

taken. Afterwards, the number of tallies taken over the time observed were added together, and divided by the total number of times observed in order to find an average number of times the student displayed off task behavior within the classroom per class, per child.

When ELA was observed, student one had an average of five reminders needed per class to stay on task, student two needed one reminder over the course of being observed seven times, student three did not need any reminders to stay on task, and student four needed an average of two reminders per class to stay on task. When analyzing the data collected for the number of reminders needed for students to stay on task during Math, student one needed an average of three reminders per class, student two and three didn't need any reminders for the time observed, and student four needed an average of two reminders to stop talking to his friends per class.

It is clear to see from the collected data that once again students one and four needed more reminders to stay on task during ELA than Math. Referring to previously stated ideas, these students could require more reminders to stay on task during ELA based on the length of the class, their lack of interest in the subject, the fact that they perform better in Math than ELA.

Another reason that some students may have had a hard time staying on task in the classroom could be due to the timing of the class. ELA is the second to last class of the day for these students. For a subject taking place after lunch and recess, the students are energetic to begin with. Knowing that they are able to go home within the next hour may keep them from being able to focus and stay on task. At this point in the day, they have already completed a majority of their classes and have already worked for so many hours. This second to last class may seem tedious to some students, especially if it is one that they know they do not do well in. The number of reminders to stay on task could have something to do with the fact that these students are just ready to leave.

Student two had a specific case of being reminded to stay on task because of something that had happened that day. The students were evacuated for a fire drill and student two had slipped and fell in the mud. When the students were allowed to return to the building, she changed into a spare set of clothes she had and returned to class a few minutes late. After doing so, she became so anxious and upset that she would break into tears throughout the class. She had talked to three different adults in the room about what had happened and how embarrassed she was about it. She was reassured each time that no one had saw her and that no one in this room could tell because she was in different clothes. She needed a reminder to become focused on the task at hand because she continuously brought up the subject and was unable to focus due to her anxiety.

As previously stated by Stolzer, symptoms of ADHD such as, “failure to pay attention, failure to follow instructions, and being easily distracted by extraneous stimuli” (Stolzer, 2009, p. 5) could also attribute to these students difficulty to stay on task. Since student one and student four are not on medication, these attributes are magnified. These students had a hard time paying attention to their work, they found difficulty in following directions to stay on task, and they were easily distracted by anything in the classroom. Student three, while not displaying these characteristics and not on medication, has proven that her anxiety causes her to decrease these traits. She becomes visibly upset when she feels she has upset her teacher in any way or has not completed the work they were given. If a teacher needs to talk to her to offer her a reminder, she immediately apologizes and resumes her work, keeping quiet the rest of the time. Student three however is on medication for ADHD and didn’t display any of these symptoms or require reminders to remain on task with his work. Student three shows that his medication may have helped him remain on task while within the classroom.

Smooth Transitions

Smooth transitions are a form of classroom management implemented by the special education teacher within this classroom. The classroom works to fill a jar with “poms” and can do so by having smooth transitions within the classroom. When the students have filled the jar, they are allowed 10 minutes of free tech time at the end of their class. Smooth transitions are ones that include students being quiet, being kind to others, and being prepared for their next activity. A sign is hung in the front of the classroom which depicts all of these traits. The students are also reminded of smooth transitions and the idea of earning poms for the jar before they begin their transition. Smooth transitions were used in Math and ELA mainly for the transitioning from center to center throughout the classroom.

Data was collected during ELA and Math by taking note as to whether or not each student had smooth transitions throughout the class period. If the student displayed only one out of three traits of a smooth transition, they were marked as not displaying a smooth transition. During ELA, student one had five out of seven smooth transitions, student two had seven out of seven smooth transitions, student three had six out of six smooth transitions, and student four had six out of seven smooth transitions. During the Math data collection, student one had four out of five smooth transitions, student two had five out of five smooth transitions, student three had five out of five smooth transitions, and student four had four out of five smooth transitions.

As per most of the data collected, student one and student three each showed an increase in proper behavior in Math and a decrease in ELA. Student two and student three stayed consistent with their behavior between the two subjects. This could again be in relation to the length of the subject, the time of day the subject is in, and their performance difference between the two subjects.

Stolzer stated that failure to follow directions is one of the symptoms of ADHD that is demonstrated and when not on medication can be more prevalent (2009). Since student one and student four are not on medication their lack of following directions could be due in part to this. Since directions are repeated before each transition, rules are posted, and positive reinforcement is offered, student one and four show a difficulty in following directions. Student two and three however displayed the ability to follow directions. Student two's ability to follow directions and have smooth transitions could be in part to her anxiety and desperately not wanting to upset anyone, especially her whole class if they are unable to earn a pom. Since student three is on medication for ADHD, his ability to follow directions and have smooth transitions could be due in part to his medication.

The increase of smooth transitions from ELA to Math and the fact that student one and student four's transitions were relatively high in comparison to the number of times they were observed. The fact that these students showed a higher number of smooth transitions for classroom behavior in both subjects than any other category observed shows that Stolzer's opinion of symptoms of ADHD lessening when frequent rewards for appropriate behavior is present proves to be true (2009). These students were offered a reward when they displayed appropriate behavior within the classroom. By offering this behavior incentive, the students were able to perform better behaviorally within the classroom and the results showed this.

The classroom management style presented in this classroom is something that clearly works for these students. They are engaged and work together in order to achieve a common goal. While all students performed relatively well within this category, student three who is on medication showed a total of fourteen out of fourteen smooth transitions within the classroom and his medication could be due in part to this.

Work Completion

When looking at the work completion section of this observation, I studied two main points in order to determine whether or not the student had completed his or her work. I focused on whether or not the assignment they had been working on for the class period had been completed, and if not, I focused on the level of completion they had gotten to. For example, if a student was given thirty questions and completed twenty to thirty of them, I would determine that they had completed their work, or that they were where they should be. However, if a student was given thirty questions and only completed fifteen of them, I would determine in most cases that the student had not completed their work and was not where they needed to be. In the remaining cases and the cases of students who were close to being done, I would then look at the work ethic of that student individually. If the student was a hard worker and normally completes their work and fell within the twenty to thirty questions completed, I would mark them as completing their work. However, if a student had only completed fifteen of the thirty questions, I would look at their work ethic and decide whether or not they had truly tried their hardest on this assignment or if they spent most of the class being distracted or doing other tasks.

When analyzing the data for ELA, student one and student four had completed six out of the seven assignments observed, student two completed seven out of the seven assignments observed, student three completed six out of the six assignments observed. When analyzing the data for Math, student one and student four had completed four of the five assignments observed, and student two and student three had completed five out of the five assignments observed.

Overall, all of the students completed most of their work. Student one and student four each didn't complete one assignment per subject, whereas student two and student three each completed all of their assignments for the observed time.

As previously stated by Stolzer, the symptoms of ADHD such as messy or incomplete assignments can be heightened when students are not on medication (Stolzer, 2009). Student one and student four were the only students who did not complete assignments or be up to a point in their assignment where they should be in both subjects. This could be due in part to the fact that neither student is on medication. With all of the reminders needed to stay on task, as the data has previously shown, the students even had trouble staying on task to complete the assignment or be up to a point within it that they were considered to have been working hard on it. However, when looking at students two and three and their work completion, all assignments were completed or completed up to a point that shows they were working hard. Student two's completion of assignments could be due in part to her anxiety and her not wanting to displease anyone. Student three's completion of assignments could be in part to his medication for ADHD.

Interview with the Special Education Teacher

In order to support my findings and back up research that I had found, I found it was necessary to interview the special education teacher who teaches the students observed in the case study, with whom I completed my practicum hours. Most of the questions I asked her focused on the study completed by Ryan in 2011. Ryan's study focused on the training of teachers in order to maximize the benefits of medication through communication and training.

I began by asking the special education teacher how many students in her classroom are currently diagnosed with ADHD. She stated that currently in her classroom of twelve students she has four who have been diagnosed. Vaughan, Roberts, & Needelman completed a study in 2009 which stated that, "93% of teachers reported having at least one child diagnosed with ADHD in their classroom in a two year period" (Vaughan, et al., 2009 p. 852). The special education

teacher has far surpassed this statistic in just one year. Not only does she have more students with ADHD in her classroom than the statistic, but she also has students with a vast variety of other needs in her classroom as well.

When focusing on the medication aspect for the students, I asked the special education teacher if the medications that the students take and the times they take them are easily at her disposal. I used the example if she needed to know whether or not a child had taken their medication at lunch, whether or not she could easily obtain this information. By being able to obtain this information, she would be able to plan accordingly, know that the students' behavior could possibly be thrown off, and be able to know why. She replied that since she is the special education teacher, she only pulls the students out of the classroom during their academic times and that is the only times that she sees them. The only way that she would possibly be able to decipher whether or not the students took their medication is if she spoke with the students' homeroom teacher and/or the school nurse. However, she did state that the students' general education teacher may be able to know whether or not the student took their medication. Ryan (2011) emphasizes the importance of the teachers communicating these facts with each other, alongside the benefits of obtainable documentation in order to ensure the students success. Ryan also states that teachers should document the dosage given, times and dates, and the individual who administered the medication (Ryan, et al., 2011). If this information was all documented, the special education teacher would be able to obtain it more easily and be able to understand how to best meet the needs of her students.

I also focused on training for the teachers and whether or not the special education teacher had received any training or any research on the medication. The special education teacher replied,

I have not received specific training through my school district for ADHD or the medication prescribed to it. Medication is more of an outside resource for parents (pediatricians and psychiatrists), and not so much of a school "service." That is, except for the nurse who administers it (if the child takes it at school). (2015)

She then stated that most of her understandings of ADHD comes from her graduate studies work and working with students who had ADHD. In terms of receiving research on the medication and its side effects, she stated that she has not received any formal research, however at times parents will open up about the medications their child is taking and informally she will be told some of the side effects they see with their child. All of this information contrasts what Ryan had stated in his study. Ryan stated that in order to enhance the safety of the child's medication, the teachers child should receive a list of the medications side effects, along with proper training for the staff. He states that, "All personnel involved in medication administration must also be properly trained. Such training may be provided by the school nurse and must include areas pertaining to safety issues, confidentiality, administration procedures/documentation, and emergency procedures" (Ryan, et al., 2011, p. 58). Training is a key aspect for these teachers to receive in order to better understand the ins and outs of the medication and support their communication with their fellow staff members.

Ryan (2011) discussed in his study just how important training is when taking into account the legal considerations that pertain to the administration of medication to these students. Since the special education teacher had not received training, I then asked her if it was offered whether or not she would be willing to receive training on IDEA, Section 504, FERPA 1974, or HIPAA in order to be able to communicate effectively with fellow staff or parents. The special education teacher replied that she would be willing to receive training,

for the purpose of knowing what (legally) I can know regarding medications students are taking. As of right now, we are not told what medication a student is prescribed and/or any side effects of that medication unless the parent tells me personally. (2015)

The openness and willingness of the special education teacher to want to receive training shows that she is determined to help her students succeed by doing everything she can in order to better understand what they go through and how she can best collaborate with fellow staff and families.

Finally, I asked the special education teacher if there are any other ways besides medication that the school supports students with ADHD, such as daily report cards, behavior support programs or social groups. She replied that there aren't any school wide support programs that she knows of, but she uses many different methods within her own classroom in order to support these students. She stated that frequent brain breaks and movement breaks are great for all learners, but especially those with ADHD. Two websites, such as, Brain Gym and GoNoodle.com are two that she consistently uses for her students. While in the classroom, these two websites were used multiple times and the students really seemed to enjoy themselves. They had favorite selections that they would go back to and visit frequently and they all participated. For some students she will use a star chart to promote on-task and focused behavior. She also uses social stories and small group work in order to help students learn strategies for staying focused on on-task as well. Lastly, she stated that one of her main methods is differentiating her lessons in order to meet all of the students' needs. She stated that, "students with ADHD usually benefit from kinesthetic learning opportunities where they can perform hands-on activities."

This special education teacher uses all of the strategies she has learned from her years of schooling and classroom experience in order to best meet the needs of all of her learners within her classroom. From the interview, she stated that she would be willing to receive training on

the legalities of medication for ADHD, resources to better understand what her learners are going through, and the best ways that she would be able to communicate with her staff and families. Through training she voiced that she herself would benefit, as would her students. Through the trainings and provided research that Ryan (2011) claims all teachers should receive, she believes she could better understand communication methods along with personal knowledge she could use with her students.

Conclusion

When analyzing all of the data and observations I have done, I have learned from this observation and the data collected that the student who was on medication for ADHD behaviorally outperformed those students who were not on medication. The students who were not on medication showed signs of struggling throughout the class periods and the different categories observed and not performing as well as the student who was on medication. Although all of the data has been analyzed, there were certain implications within the study that could have affected the data that was collected.

To begin, I was only in the classroom for a short period of time. Visiting for a total of fifty hours did not provide me with ample time to truly become acclimated with the students, their routines, or their different behaviors. Through my short period of stay in the classroom, I was still able to develop a great rapport with the students, however, actually knowing who they are as students, and how they act within the classroom was unfavorable. By only spending such a short amount of time with these students, I wasn't able to truly see how these students behaved, truly know their personalities, or truly understand what leaning style they learn best from. What really helped me learn more about these students and know them the best that I could while being in the classroom and completing my study was reading their IEP's. By reading these, I

was able to obtain information on the students that has been collected over a lengthy period of time. These IEP's described the student academically, socially, and stated their interests, amongst other things, all of which helped me get to know the student on an individual level, as well as in all of the categories that were being observed. In this short period of time, while I was able to get to know the students the best I could, however, they did not have anything to learn about myself besides what I was able to provide them with when the opportunity presented itself. This lack of understanding between them and me could have been a factor that caused them to behave differently within the classroom while I was there opposed to when I was not.

Secondly, the observation was done in a classroom that was not my own. By being in a classroom that has a set of rules that I did not help to create, the teacher and students may have different expectations of certain rules than I could in my own classroom. In order to avoid running into an issue with this while completing my case study, I made sure to specify what I was looking for and what I defined as acceptable for the category being studied, unless of course it was a rule previously set by students and teacher, such as smooth transitions.

Another factor that could have affected the data collected was that there was a small subject pool from which I was able to observe students so the data was limited. This proved to be difficult when collecting data because there was only one student in the case study who was taking medication for ADHD. In order to completely match up data and compare students who were on medication against each other, it would have been beneficial to have a second set of data for a student who was on medication for ADHD. By having three students who were not taking medication and one student who was, there was no other data to back up or confirm what was found for the student who was on medication. The closest thing I was able to observe was a student who had previously taken medication for ADHD and discontinued use of it because she

did not like the way that the medication had made her feel (Student two). While the subject pool was small, that didn't prove to be the only difficult factor within the study.

One of the largest and most troublesome factors in this study was the difficulty to obtain information on the students. The special education teacher wasn't able to obtain much information on the students' medical records in order to see what medication was being taken or had been taken in the past, the prescribed amount, the times it was intended to be taken, or any other vital information. Much of the information that initially was needed for the study was classified information which was not under the special education teacher's access. The information obtained for student three was acquired from the special education teacher from conversations she has had with student three's mother. The special education teacher and the mother of student three keep in very close contact in order to ensure that all is going well within the classroom and to keep the teacher up to date with any changes that are at home or being made to the student's medication plan. All information gathered was through the special education teachers knowledge of the students, what their parents or previous teachers have relayed, or the students IEP's. Although more detailed information could have been discussed, it was not at the special education teacher's, or my disposal.

While completing this study, I have learned a lot about the diagnosis of ADHD, how it affects students in the classroom, how it affects teachers, and I have learned a lot about myself. When I first had the idea for this case study, I related it all strictly to the experiences I have had with ADHD in my past, how I had seen it affect different members of my family and how it affected me both as an individual and currently as a prospective teacher. When I began my study, I had expected to find behavioral and work ethic differences between the students who were on medication for ADHD and those who were not on medication. I anticipated walking

into the room and being able to distinguish which children were on medication and which were not. My assumptions for this were correct. After being told which students were diagnosed with ADHD, I began to notice the differences between the four students and was able to tell that student three was the one student who was on prescription medication. It was clear from his body language, behavior, social interactions, and work ethic that the medication had more than likely changed who he was when he was not on medication. After the research I had completed, it was very obvious that he was the student who was on medication, and the remaining three were not. However, student two, who had previously taken medication, acted the same behaviorally within the classroom as student three. While the three students who were not on prescription medication were not completely out of hand or bad students by any means, they weren't the "ideal" student that ADHD medication makes students become. That is where my passion for this topic lies.

As educators, we value each individual student and study their individual learning needs and differentiate our lesson plans in order to ensure all the different learning styles of the learners are being met. While making sure our lessons can meet the needs of all learners, an overuse of prescription medication for ADHD is causing us to forget just that. We are overlooking the fact that each child is an individual, that they each have different needs, that they each respond differently to different environments and stimuli. I do strongly believe and agree with the fact that some students most definitely do need prescription medication to be able to function within the classroom and behave in a manner that is respectful to their peers, however, I disagree with the fact that such a large number of students are being diagnosed with ADHD simply because they are talkative, active, or not the "ideal" student that is desired in the classroom. If a student is taking a prescription medication that is designed to heighten their energy and alertness and as

stated previously, cause personality changes such as making the individual more quiet, of course they will be better behaved in the classroom as that is the purpose of the drug. Eight to ten million American children have been diagnosed with ADHD in the 21st century (Stolzer, 2009). It seems as though any time a child is too talkative, too fidgety, too unorganized, they are quickly diagnosed and given a pill just so that there can be a label attached to what is going on and a way to fix it. Instead of embracing that child's differences and being able to differentiate and help meet the needs of this learner, society is quick to offer a prescription to "solve" the problem and make them easier to deal with. My study, while proving what I had assumed, that students with ADHD who are on medication will perform better behaviorally than students who are not on prescription medication, has also proven that students with ADHD who are not on prescription medication within this classroom can perform adequately in their classes. While their behavior may not be flawless, they are still completing their work and are able to participate to the best of their ability.

Through completing this case study I have learned many different things. I have learned that I am not as against prescription medication as I have been in the past. I do understand that at times it is necessary, however, it should be decided on a case to case basis and off of the parents' wishes. I have learned different strategies from the special education teacher I have worked with while completing this case study that work best for the students with ADHD observed in this case study. For each student, there are different strategies that work best for them individually, and I have learned that trial and error is the best approach to learn what works best for the individual at hand.

As a future teacher, I will use this case study in my future teachings. I will share the findings with fellow staff, not only to show that students who are on medication perform better

behaviorally than those who are not on medication, but to show that the students who are not on medication, can also perform adequately as well. These findings can also be shared with parents if they are trying to decide whether or not to medicate their child. Making this choice for your child can be a difficult one. Being able to provide a study that can outline all of the information about the diagnosis itself and how it is presented within the classroom could be extremely beneficial to those families. While the information can be beneficial to those who read it in need of discovering new information, the case study conducted was done on a very small scale. The time frame, student pool, and information gathered was done with the provisions provided, however could be done on a much larger scale.

References

- Ahmed, R., Borst, J.M., Wei Yong, C., Aslani, P., (2014). Do parents of children with ADHD receive adequate information about the disorder and its treatments? a qualitative investigation. *Patient Preference and Adherence*, 8, 661-670.
<https://pluma.sjfc.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=96399711&site=eds-live&scope=site>
- Davis-Berman, J.L., & Pestello, F.G. (2008). Medicating for ADD/ADHD: Personal and social issues. *International Journal of Mental Health & Addiction*, 8, 482-492.
doi: 10.1007/s11469-008-9167-z
- Hoffman, M.T., (2009). Medication, behavioral, and combination treatments for school-aged children with ADHD. *Current Medical Literature: Pediatrics*, 22, 33-40.
<https://pluma.sjfc.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=43700363&site=eds-live&scope=site>
- LeFever, G.B., Dawson, K.V., & Morrow, A.L., (1999). The extent of drug therapy for attention deficit hyperactivity disorder among children in public schools. *American Journal of Public Health*, 89, 1359-1364.
<https://pluma.sjfc.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=2222987&site=eds-live&scope=site>
- Mazza, K., (2014). Distracted at school: Aprosexia, ADHD and adenoids in american culture. *The Journal of American Culture*, 31, 16-28.
<https://pluma.sjfc.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=57420044&site=eds-live&scope=site>
- McConaughy, S.H., Vope, R.J., Antshel, K.M., Gordon, M., & Eiraldi, R.B. (2011). Academic and social impairments of elementary school children with attention deficit hyperactivity disorder. *School Psychology Review*, 40, 200-225.
<https://pluma.sjfc.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=63153794&site=eds-live&scope=site>
- Ryan, J.B., Katsiyannis, A., & Hughes, E.M., (2011). Medication treatment for attention deficit hyperactivity disorder. *Theory Into Practice*, 50, 52-60.
doi: 10.1080/00405841.2011.534939
- Stolzer, J.M., (2009). Attention deficit hyperactivity disorder: Valid medical condition or culturally constructed myth? *Ethical Human Psychology and Psychiatry*, 11, 5-15. doi: 10.1891/1559-4343.11.1.5
- Stolzer, J.M., (2012). The risks associated with stimulant medication use in child and adolescent populations diagnosed with attention deficit/hyperactivity disorder. *Ethical Human Psychology and Psychiatry*, 14, 5-14.

<https://pluma.sjfc.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=78181810&site=eds-live&scope=site>

Vaughan, B.S., Roberts, H.J., & Needleman, H., (2009). Current medications for the treatment of attention-deficit/hyperactivity disorder. *Psychology in the Schools*, 46, 846-856. doi: 10.1002/pits.20425