

# A comparison in attitudes and knowledge about behavioral therapy in the treatment of attention deficit/hyperactivity disorder between family practice physicians and psychiatrists

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**FINAL APPROVAL OF SCHOLARLY PROJECT**  
**Master of Science in Biomedical Sciences**  
**Concentration in Physician Assistant Studies**

**A Comparison in Attitudes and Knowledge about Behavioral Therapy in the  
Treatment of Attention Deficit/Hyperactivity Disorder Between Family  
Practice Physicians and Psychiatrists**

Submitted by

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2006

## Dedications

Life is always a struggle. I hope my struggles will help me become a better PA in the future. For now, I wouldn't have made it this far without the help of many in MUO's program:

Thanks to those faculty who listened and understood the struggle; either personally or through empathetic words and encouragement.

Thanks to my parents who have supported me the entire way.

Special thanks to Chair Hogue, Professor Kenter, and Dr. Hampton—each has listened to me and had patience at times when they could have chosen not to. For that I am grateful.

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## CHAPTER I

### Introduction

Attention Deficit/Hyperactivity Disorder (ADHD) is the most common psychiatric illness in children (Szymanski & Zolotor, 2001). The accepted treatment is a combination of stimulant medication and behavioral therapy with frequent follow-up office visits (Stockl, Hughes, Jarrar, Secnik, & Perwien, 2003; Szymanski & Zolotor, 2001). However, a surprising percentage of children with ADHD are being treated with medication alone without adequate follow-up (Rushton, Fant, & Clark, 2004). The research discussed below indicates that primary care physicians (PCPs) are able to diagnosis this illness; however, they are not utilizing the appropriate treatment options available for children. To further complicate matters, this is an illness that will not typically go away with time. Elliott (2002) showed up to 60% of children with ADHD progress into adulthood and live with the disruptive symptoms of ADHD that alter their daily activities. That percentage, if accurate, is alarming. ADHD is a disorder that needs to be successfully managed in childhood to reduce the number of symptomatic adults. However, management of ADHD has become complicated in today's society due to negative perceptions about the disease (Kanapaux, 2002) and the media's focus on unjustifiable accusations towards stimulant medication. Though stimulant medication alone is effective treatment in most cases (Szymanski & Zolotor, 2001), a more involved, multimodal treatment plan is needed when noting the progression of this illness into adulthood. Kanapaux (2004) found that most children diagnosed with ADHD never see a psychiatrist for treatment. This seems unusual since ADHD is a behavioral disease that manifests in many settings and affects the entire family. One would think the benefit from behavioral therapy in combination with medication would be an ideal treatment.

### Statement of Purpose

The purpose of this study was to examine and compare the attitudes and knowledge about behavioral therapy in the treatment of ADHD between family practice physicians and psychiatrists.

### Statement of the Problem

The accepted treatment recommendation by the AAP for ADHD is a combination of medication and psychotherapy/behavioral therapy. However, the majority of children with ADHD are being treated with medication alone. Testing attitudes and knowledge about behavioral therapy in the treatment of ADHD among different primary care professionals might uncover why current recommended treatment is not being applied to many patients with ADHD.

### Assumptions

- 1) This study assumed that the problems that prevent health care professionals from delivering the gold standard of treatment for ADHD patients are options listed on the questionnaire. These options were based on previous research and literature listed in the literature review. However, there may be the possibility that some options have not yet been uncovered and no literature is yet available. Furthermore, the survey was developed in a multiple-choice, anonymous organization; therefore, there is no way for the participants to communicate alternative possibilities that restrict the treatment for ADHD from the standard of care.
- 2) It was assumed that the optimal groups for comparison in this study were family care physicians and psychiatrists. This was based on the ideology that family care physicians are the health professionals that are most likely to see ADHD patients initially for diagnosis and begin or maintain a treatment regimen. Psychiatrists were chosen as the

comparative group because these health care professionals seemed most likely to support behavioral therapy and know the means necessary to obtain this therapy for ADHD patients, due to the nature of the psychiatry specialty. In a sense, it would seem psychiatrists should hold an innate bias toward behavioral therapy for ADHD, as is the recommended treatment. If there are obstacles in obtaining the recommended behavioral therapy, psychiatrists should be familiar with these obstacles, provided the obstacles were correctly stated on the questionnaire.

- 3) Since there was no pilot study done for this project, it was assumed that the overall method and evaluation process in this project were done in a valid manner.
- 4) It was assumed that participants in this study returned the questionnaires and answered the questions honestly to best of their knowledge, without outside aid of any kind. It was also assumed that the participants were family practice physicians or psychiatrists who have had experience in their designated fields, as opposed to students or other health care providers working with these professionals.

#### Limitations

- 1) This study involved only health care professionals associated with the Medical University of Ohio and within the Northwest Ohio region. This sample of the population of health care professionals may hold certain ideals or bias about the treatment of ADHD based on training received from the Medical University of Ohio or ideals held within the Northwest Ohio regional community. Such ideals and bias could affect the outcome of this study, but may not represent ideals held in other surrounding organizations or communities. An effort to correct this limitation was made by dispersing surveys as widely and evenly as possible throughout the Northwest Ohio region.

- 2) The sampling in this study was limiting. Out of the one-hundred and sixteen surveys handed out, a total of forty-two were correctly returned for data analysis. This was a response rate of thirty-six percent. The low response rate might be a limiting factor in this research project and therefore, results from the data may not represent a larger population or even a larger sample of the population at hand. Efforts were made to increase response rates by redelivering the surveys to participants and encouraging them to complete and return the survey if they had not already done so. The distribution between the two groups (family practice physicians and psychiatrists) was fairly even and did not seem to be a limiting factor when the data from the two groups were compared and analyzed. Out of the forty-two returned surveys, sixty percent were family practice physicians and forty percent were psychiatrists.
- 3) The non-experimental design of this study provides some limitation in regards to the cause-and-effect relationship. Since there is no treatment given to the participants, nor was there randomization of the two groups, only observations and comparisons between the two groups were made. Therefore, deductions as to why certain results were obtained cannot and were not proven; only speculation and suggestions as to why results were obtained were discussed based on the analysis of data and review of literature. However, the observations made in this study may help fuel future research projects with different experimental designs able to ascertain why certain phenomena are occurring that this project could not prove.

### Hypotheses

Alternative: Psychiatrists will be more knowledgeable and have a more positive attitude towards the use of behavioral treatment for ADHD patients than family practice physicians.

Null: There will be no difference in attitude or knowledge about behavioral therapy in the treatment of ADHD patients between family practice physicians and psychiatrists.

## CHAPTER II:

### Review of the Literature

#### *History and Background of ADHD*

Attention Deficit/Hyperactivity Disorder (ADHD) was first documented in 1846 by a physician named Heinrich Hoffman from Germany (Thome, 2004). The symptoms of ADHD were noted in a character called “Fidgety Philip” in a children’s book that Dr. Hoffman wrote called *Struwwelpeter* for his son. This character showed the first documented diagnosis of ADHD. Also in Thome’s 2004 article, he makes the argument that this book by Dr. Hoffman disproves the theory by critics that states ‘ADHD is an illness invented by modern times’. After all, Heinrich Hoffman founded the first mental hospital in Germany during the mid-eighteen hundreds according to Thome (2004). If Dr. Hoffman’s character “Fidgety Philip” truly represents a child or children that he has seen while practicing, than Thome’s argument seems to be true.

ADHD was documented later in 1902 by a pediatrician named George Still. Still wrote about ADHD as a disorder of “lack of moral control”, mainly seen in young boys (Still, 1902). It wasn’t until the 1960’s, that ADHD was recognized and officially named Hyperactive Child Syndrome (MacMartin, 2000). The historical nature and recorded incidence of ADHD is important in this context because there has been a widespread misperception that ADHD is an illness that has been invented recently by the medical profession. This false perception, as well as others, has led to negative attitudes toward ADHD by both health care providers and public opinion.

### *Negative Perceptions toward ADHD*

It seems that few topics in children's health have generated as much public concern and negative stigma as ADHD. Kanapaux (2002) blames the negative perceptions of the disease on media outlets that worried communities in the 1990's and 2000's about children using schedule II drugs, though there was no evidence to suggest this regimen to be unsafe for children. This reference also states that there is an overall discomfort among people in the public towards putting children on any kind of regular medication for a "behavioral illness", whether it is necessary or not. Kanapaux (2002) goes on further to suggest another reason there are negative perceptions among health care providers (PCPs) towards ADHD may be because of the fear that parents want their children to be well-behaved at school and will often present in the office demanding medication for their children. Elliott (2002) agreed and added that some primary care physicians feel ADHD can often be a "self-diagnosed condition". Because of this "self-diagnosis", PCPs feel uncomfortable prescribing a scheduled drug. From this data an assumption could be made that negative attitudes towards ADHD could be formed by PCPs because of the confusion as to whether a correct diagnosis was actually ever obtained for their ADHD patients or if the patient's parents self-diagnosed their own child. Most parents probably believe ADHD is a behavioral disorder caused by high sugar intake/food additives, poor parenting, or even lack of physical activity (Parker, 2005). The organization called CHADD-Children and Adults with Attention Deficit Hyperactivity Disorder displayed an article in 2004 that provides evidence against those that theorize ADHD is caused by increased sugar intake or poor parenting. CHADD also dismissed the idea that ADHD is "not a real disorder" and has the sole goal of educating people about ADHD to avoid such misperceptions. However, negative attitudes and false knowledge still persists among the public, including health care providers.



### *Etiology of ADHD*

In actuality the current, accepted etiology of ADHD is a neuro-psychiatric disorder in which 80% of cases have a genetic basis (Voeller, 2004). Elliot (2002) suggests ADHD is the result of a metabolic deficit that causes changes to the basal ganglia and corpus collosum symmetry—though MRI and CT scans are negative. The Mayo Clinic Health Library (2005) lists four possible risk factors that contribute to the development of ADHD: 1) altered brain function due to changes in neural pathways or dopamine levels, 2) heredity, 3) maternal smoking or drug use that exposes the fetus to toxins, and 4) childhood exposure to lead or environmental toxins. Much research needs to be completed before the true factors causing ADHD can be determined.

### *Symptoms and DSM-IV Diagnostic Criteria of ADHD*

There are no laboratory tests or imaging systems able to diagnose ADHD (Zolotor & Szymanski, 2001). However, the Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> ed. (DSM-IV) lists several symptoms under the diagnostic criteria for ADHD. The hallmark symptom should be inattention and/or hyperactivity. The onset of these symptoms should be before the age of seven and these symptoms must be present in two or more settings. Also, symptoms should be present for six months or longer and be maladaptive or inconsistent with the patient's normal developmental level. Since there are subtypes of ADHD (the inattentive type, the hyperactive/impulsive type, or a combination of the two), there are two lists of additional symptoms that patients must exhibit. For the inattentive type, patients must exhibit six of the following symptoms: fails to give close attention to details or makes careless mistakes, often has difficulty sustaining attention, often does not seem to listen when spoken to directly, often does not follow through on instructions and fails to finish tasks, often has difficulty organizing tasks

and activities, often avoids or is reluctant to engage in tasks that require sustained mental effort, often loses things necessary for tasks, often easily distracted by extraneous stimuli, or is often forgetful in daily activities. For the hyperactive-impulsive type, patients must exhibit six of the following symptoms: often fidgets with hands or feet or squirms in seat, often leaves seat in classroom or in other situations, often runs about or climbs excessively in situations in which it is inappropriate, often has difficulty playing or engaging in leisure activities quietly, often “on the go” or often acts as if “driven by a motor”, often talks excessively, often blurts out answers before questions have been completed, often has difficulty awaiting turn, or often interrupts or intrudes on others. If a patient is diagnosed with a combination of subtypes, that patient should exhibit twelve symptoms, six from each list.

#### *Difficulties and Keys for the Accurate Diagnosis of ADHD*

ADHD seems difficult to diagnose due to the subjective nature of the DSM-IV diagnostic criteria. Johnson (1997) and others found it necessary to diagnosis ADHD not only with an initial office visit, but also observe the patient in an outside setting. Kanapaux (2002) claims research supports that an accurate and reliable diagnosis can be made through the DSM-IV criteria, but a comprehensive psychiatric evaluation by a professional with expertise in ADHD is needed as well.

Although other disruptive behavioral disorders seem to mimic ADHD symptoms, Kim and Miklowitz (2002) also support the idea that an accurate diagnosis can be made using the DSM-IV criteria. If such a thorough evaluation is needed to diagnose ADHD, and Ruchton, Fant, and Clark (2004) found 77% of the surveyed PCPs were in fact familiar with diagnostic guidelines, it is surprising only 25.8% of these PCPs utilized all of the diagnostic components to evaluate their patients. Either the PCPs do not know the complete diagnostic criteria, there are

underlying issues that prevent utilization of this criteria, or even though diagnostic criteria is known, is it difficult to recognize ADHD symptoms clinically because of a lack of experience. These issues warrant further investigation.

#### *Comorbidity and Differential Diagnoses associated with ADHD*

The accurate diagnosis of ADHD is often complicated due to existing comorbidity or other illnesses that mimic ADHD. Some comorbidities include: Oppositional Defiant Disorder, Conduct Disorder, Anxiety Disorder, Depression, Learning Disorders, or Tourette's syndrome. In fact, Szymanski and Zolotor (2001) reported 65% of ADHD cases are connected to some type of comorbid condition. This statistic is consistently reported in numerous other studies as well (Elliott, 2002; Kanapaux, 2002; Steer, 2005; Voeller, 2004; Wilens, 2006). Elliot (2002) made a statement that some suspect ADHD is a precursor for other mental illness, but since ADHD is also found in an independent state without other attached illness, this theory was quickly rejected.

Oppositional Defiant Disorder (ODD) most commonly presents in boys with symptoms of loss of temper, resentment, and defiant behavior, especially towards authority. Conduct Disorder is similar to ODD but is considered more severe with presentations of destructive behaviors including harm to others, harm to animals, destroying objects, and/or setting fires. When ODD or CD is comorbid with ADHD, patients will not only make poor decisions and/or be destructive, but do so impulsively. This may require immediate intervention to avoid harm to the patient or others, especially in patients with ADHD and CD. ODD or CD will present in approximately 58.5% of ADHD patients according to Weckerly et al. (2004). The same study showed 32.7% of their ADHD patients to have anxiety or depression. The Mayo Clinic (2005) concurred with similar statistics when noting the prevalence of ODD, CD, depression, and

anxiety with ADHD. Learning disorders also seem to be quite common in ADHD patients, requiring the use of special educational services for learning purposes. It is interesting to note that Tourette's syndrome, which manifests with motor or vocal tics, is always present with ADHD; however, not all ADHD patients have Tourette's syndrome (Biederman, Faraone, Spencer, et al., 1993).

Since comorbidity complicates ADHD, most of the literature suggests the best key to diagnose ADHD in older, more complicated cases is the presence of inattentiveness and hyperactivity early on in the patient's life. Though this information may be difficult to obtain or difficult for older patients to remember, inattentiveness and hyperactivity at an early age are typically not present with the comorbidities of ADHD. Another approach to diagnose complicated ADHD cases is to treat the comorbidity first, then the symptoms of ADHD should be easier to recognize and diagnose if in fact it exists (Elliot, 2002).

Because of the chronic annoyance of ADHD symptoms, adults with ADHD are at risk to develop more comorbidities such as schizophrenia, chemical dependency, antisocial personality disorder, mood disorders, and anxiety disorder (Biederman, Faraone, Spencer, et al., 1993). The Mayo Clinic (2005) noted the increased risk of chemical dependency, especially alcohol abuse, in adult ADHD patients. This may be because substance abuse allows adult ADHD patients with poor self-esteem or antisocial tendencies to become more outgoing with others. Another reason could be that adult ADHD patients with anxiety or depression become more relaxed and the drug use seems to diminish problems or anxieties that the patient may have. Many adult ADHD patients may develop comorbid mental illness because they can not understand or properly control their own behavior that leads to long-term frustrations. Adult ADHD patients have been shown by the Mayo Clinic (2005) to have higher divorce rates and an increase in marital

stressors when compared to others without ADHD. The same study also showed these patients are at higher risk for physical traumas and increased incidence of motor vehicle accidents.

There are differential diagnoses that can mimic ADHD and/or be comorbid with ADHD. Sleep apnea often presents like ADHD because patients will exhibit irritability, inattentiveness, and paradoxical hyperactivity due to the lack of sleep (Mayo Clinic, 2005). Bipolar Disorder is a complicated illness because it can be a differential diagnosis of ADHD or a comorbid condition with ADHD (Montano, 2004). Elliot (2002) goes so far as to suggest the presence of ADHD identifies a risk for the patient to later develop Bipolar Disorder. The manic state of Bipolar Disorder can appear like ADHD. However, mania patients exhibit short periods of increased spending, increased sexual appetite, and/or grandiosity. Patients with ADHD are more likely to show longer, more generalized periods of similar mania symptoms such as poor money management or procrastination. As mentioned earlier, chemical dependency can be a comorbidity of ADHD, but it can also be a differential diagnosis. Patients often present with a history of inattentiveness, monetary problems, and/or increased marital/relationship problems that are similar to those of an adult ADHD patient. Montano (2004) suggests one way to rule out some of the differentials of ADHD is to use different ADHD rating scales, though there are currently no standardized tests available at this time.

Some medical differentials exist for ADHD as well. These include: hyperthyroidism, hypothyroidism, drug interactions, head injury, vitamin B12 deficiency, or heavy metal poisoning (Elliot, 2002). However, a complete work-up by a primary care provider should clearly rule out most of the medical differential diagnoses of ADHD. If ADHD is likely, an MRI/CT or EEG should be done to obtain a baseline for future reference. A neurological and mini-mental exam should be performed. Blood pressure and EKG testing should be done if

hypertension or arrhythmia is suspect. Other useful tests to rule out medical conditions are: complete blood count, electrolytes, liver function tests, thyroid function tests, vitamin B12 measurement, and a serum heavy metal screen to rule out poisoning or toxicity (Mayo Clinic, 2005; Szymanski and Zolotor, 2001).

#### *Accusations about the Over-Diagnosis of ADHD*

In 1990, 1.6 million cases of ADHD were reported to the CDC; in 1993, 4.2 million cases of ADHD were reported (Kanapaux, 2002). When the media began reporting the increase in ADHD cases, much speculation arose in the public and among health care providers. ADHD became a well-known and popular topic of discussion in America. However, according to Kanapaux (2002), ADHD is both over-and under-diagnosed. In fact, it is difficult to find evidence that ADHD is over-diagnosed (Jensen et al., 1999). The explanation for the increase in new cases during the early 1990's is because screening tools and the number of school-based services increased dramatically (Ellison, 2005), which shed light on the under-diagnosis of ADHD at that time. The Surgeon General Report (2001) states that there is a large percentage of children across the United States that have a mental illness, yet are not being diagnosed or treated due to lack of access to care or lack of community resources. This population includes children with ADHD. Research done by the Mayo Clinic (2005) agrees that ADHD is over-and under-diagnosed. This article also proposes over-diagnosis occurs in the richer, suburban, Caucasian populations due to over-awareness and under-diagnosis/lack of treatment occurs in the poorer, rural, African American and Asian populations due to racial bias and/or no insurance coverage.

*Diagnostic Barriers and AAP Treatment Recommendations for ADHD*

In summary, the evidence has shown that even though there has been much speculation about the correct diagnosis of ADHD, it can be diagnosed correctly and in most cases, is being correctly diagnosed. ADHD might be under-diagnosed in some cases due to the population of children with lack of access to care. The treatment of ADHD has also been scrutinized by media and among health care providers. However, it is clearly shown by many sources that multimodal treatment is the best approach to manage a patient with ADHD (Szymanski & Zolotor, 2001). Multimodal treatment includes pharmacotherapy, behavioral therapy, family involvement, and school involvement. However, most PCPs are not following these recommendations because they are treating ADHD with stimulant medication alone (Szymanski & Zolotor, 2001).

In 2001, The American Academy of Pediatrics (AAP) issued “evidence-based”, clinical guidelines for the management of patients diagnosed with ADHD that are still used today and regarded as a “framework” of treatment by many of today’s health care providers. The statements to follow will outline the AAP’s five recommendations. The first recommendation states that PCPs should realize that ADHD is a chronic condition that requires ongoing management. The AAP notes that children should receive “child-specific treatment plans... for a chronic condition”. This may include: the involvement of other health services, going to ADHD support groups with other families, educating families about ADHD and frequently monitoring their understanding of the disorder, family counseling, and setting both long and short-term treatment goals. These treatment options allow patients and families to build long-term relationships with their clinician, other families that have ADHD, and supporting organizations. The AAP also suggests that if these relationships are built during management, patients with

ADHD have better outcomes for the entire family, not just the patient with ADHD. Also, patients are more satisfied with their treatment and have a better understanding of the disease.

The second recommendation by the AAP is that ADHD should be managed with a team of people that all have the same goals for the treatment. The American Academy of Family Physicians also supports the idea of a multidisciplinary approach to treat ADHD patients (Zolotor & Szymanski, 2001). The interdisciplinary team should include the primary care provider, the parents of the child, the child, persons from the child's school, and other outside counselors or organizations involved. The rationale for group collaboration is that ADHD manifests in more than one setting in the child's life. Therefore people involved with the child in different settings must be included in the management for consistency purposes. The AAP states that a team management approach demonstrates the following results: better relationships with family members and others, less manifested symptoms, better results in schoolwork and better self-esteem.

The third AAP recommendation involves the use of stimulant medication with or without behavioral therapy. It is important to note that due to the high efficacy the AAP specifically recommends stimulant medication and not some of the alternative medications that are available for the treatment of ADHD. According to this study, 80% of children with ADHD respond well to stimulant medication (AAP, 2001). Though it is known that behavioral therapy alone is not as effective as the use of stimulant medication alone, treatment is enhanced when the two are used together (AAP, 2001). For example, a type of behavioral therapy is a rewards system for good behavior to encourage a child to make good decisions. Behavioral therapy also builds good communication skills among family members to aid in avoiding potential conflict. Another advantage of behavioral therapy is setting short term goals to help a child focus and learn the



importance of goals while providing structure to the child. Most importantly, behavioral therapy teaches the patient and family how to overcome the difficulties of ADHD symptoms.

The fourth recommendation from the AAP addresses the concerns of differential diagnosis when treatment goals are not being met. As discussed earlier, other disorders can mimic ADHD and if treatment is not working as expected, the original diagnosis of ADHD should be re-evaluated or it should be questioned if a coexisting diagnosis is present. This should only be considered after two or three stimulant medications have been tried with the appropriate adjunctive therapy and have not been successful (Szymanski and Zolotor, 2001). Additionally, the PCP should obtain information about the patient from several sources to rule out incorrect information or compliance issues. Treatment goals should be re-evaluated to ensure they are realistic. Once these issues are addressed and there is still no response to the treatment regimen, a coexisting illness or new diagnosis is probably suspect. This requires re-evaluation of old information obtained when the initial diagnosis was made and a new evaluation by a specialist such as a developmental-behavioral pediatrician or child psychiatrist.

The last recommendation from the AAP addresses the need for consistent and frequent follow-up office visits to monitor the progress of the patient. Since stimulant medication often requires titration, follow-up visits are obviously mandated until the appropriate dosing is obtained. Even after correct dosing is established follow-up visits are also needed to monitor the patient's family dynamics and address any concerns, continue patient education, ensure compliance of the treatment regimen, and make new goals for the patient as they grow and change. Continuous performance testing may also be used at follow-up visits to demonstrate progress in treatment according to Zolotor and Szymanski (2001).

### *Overview of the Stimulant Medications Used to Treat ADHD*

Stimulant medication is the first line of treatment for ADHD because multiple reviews and studies have shown that stimulants are efficacious against the main symptoms of ADHD (AAP, 2001). Kanapaux (2002) also agreed that stimulants are safe and very effective for the first line treatment of ADHD. The stimulants most likely to be used are methylphenidates, available in short, intermediate, and long-acting forms or amphetamines, also available in short, intermediate, and long-acting forms. The AAP (2001) states “stimulants not only decrease the symptoms of ADHD, but improves the child’s ability to develop relationships with peers, teachers, and parents”.

Szymanski & Zolotor (2001) warn that even though stimulants work effectively it is important to beware of “rebound effect” when using stimulants. This manifests when drug levels fall below the therapeutic range and as a side effect, worsening of the presenting ADHD symptoms occurs. In the same article, Szymanski & Zolotor further state this rebound effect determines whether or not a patient can be treated with multiple doses of the medication. Other than the rebound effect, stimulants are relatively safe with few contraindications. An exception, which the Physician’s Desk Reference (2003) warns against, is putting ADHD patient’s with seizure disorders on methylphenidate. If other side effects do occur, most are transient and mild in nature (Szymanski & Zolotor, 2001). Examples of these side effects are decreased appetite, stomachache, headache, delayed sleep, jitteriness, and social withdrawal. The Mayo Clinic (2005) states the most common side effects of stimulant medication are loss of appetite, decreased sleep, and nervousness. Serious side effects include psychotic reactions, mood disturbances, or hallucinations; however, these side effects are rare. The same research showed

that 15-30% of ADHD patients on stimulants will develop motion tics, but as stated before these are transient in nature.

Some have speculated that stimulants cause a delay in the growth of a child. However Davis (2005) states there is no evidence to support this side effect of stimulant medication. Another theory by some PCP's is the need for a "holiday period" for patients on long term use of stimulants. Szymanski & Zolotor (2002) state tolerance to stimulant medication does not occur in children with ADHD. The Mayo Clinic (2005) states there is no addiction risk to stimulants because the drug levels rise in the brain too slowly to create a high. There is no evidence to suggest a benefit of stopping stimulant medication for a brief period of time during treatment with long term use of stimulants for ADHD patients (Davis, 2005).

To begin an ADHD patient on stimulant medication, the dose is not based on weight. The dose is started at a low level and then titrated up accordingly (Physician's Desk Reference, 2003). Stated in the same recommendations, dosing can be increased depending on the time of day or the upcoming activities that the patients will attend. This allows patients to have more control during certain times of the day when symptoms manifest the most. Szymanski & Zolotor (2001) recommend initial dosing to occur once daily and observe the patient's reaction to the medication. Then, the dose can be adjusted or increased as needed for better control. The effects of the stimulant medication should be monitored for one or two months of use. If there is still no response to the stimulant medication after the dose has been titrated up over this time period, then a decision to change stimulants can be made. ADHD patients on stimulant medication do not require serologic, hematological, or EKG testing. Once an ADHD patient is started and adjusted on a stimulant medication, 80% of the children respond with control of symptoms. Of the remaining 20% that did not respond well, those patients should be tried on a different

stimulant medication and are likely to have a good outcome (Szymanski & Zolotor, 2001). If there is still not a good response to the medication after three stimulants have failed, the diagnosis should be re-evaluated.

There are different approaches when choosing which types of stimulant to prescribe an ADHD patient. Szymanski & Zolotor (2001) recommend starting an ADHD patient on a rapid onset, short duration stimulant. This recommendation was made based on the theory that if a child exhibits initial side effects from the stimulant, the medication will cycle through the body and be gone quickly. Furthermore, if the stimulant is successful in controlling the symptoms of ADHD, it is easier to determine this success by observation of the child on and off the medication. However, the recommendation warns that rapid onset, short duration stimulants are likely to exhibit the rebound effect due to the multiple doses that are required for good control of ADHD symptoms. Both of the stimulants, Methylphenidate and Dextroamphetamine, are available in rapid onset, short acting forms and the duration of action of these drugs last approximately one to four or five hours (AAP, 2001). Methylphenidate works by blocking the activity of dopamine transporters, which are responsible for removing dopamine after it have been release at the synapse (Mayo Clinic, 2005).

Szymanski and Zolotor (2001) do not recommend the use of a slow onset, longer duration stimulant as a mono-pharmacotherapy. Slow onset, longer duration stimulant are best used in combination with the rapid onset, short duration stimulants. With this recommendation, there is coverage over a long period of time and extra control during certain periods of the day when symptoms manifest the worst. One such combination is a rapid onset, longer duration stimulant which seems to provide excellent control among ADHD patients (Szymanski and Zolotor, 2001). An example of this type of medication is Adderall® (Amphetamine-dextroamphetamine) or

Concerta® (Methylphenidate). Adderall XR® was removed from the market in 2005 by the FDA due to sudden deaths caused by the medication (Mayo Clinic, 2005).

*Alternative Pharmacotherapy for the Management of ADHD*

The AAP (2001) only recognizes two other medications for the approved second line of treatment in ADHD, tricyclic antidepressants (TCAs) and bupropion. This study also mentions the use of clonidine, the antihypertensive medication, to treat ADHD in children that have sleep disturbances; however, this is not a prevalent method of treatment. Szymanski and Zolotor (2001) suggest the best combination of medications for the treatment of ADHD includes medicines that will require few re-doses, will have a fast, predictable onset as well as a long duration of action with as few side effects as possible. This study mentions that the use of other types of medications, even though considered a second line of treatment for ADHD, may be incorporated with stimulants to achieve this effect. Another suggestion from this article was the use of antidepressants when ADHD patients have other comorbidities. For example, antidepressants affecting norepinephrine levels can be used alone or as adjunctive therapy. However, they are also useful when trying to improve patients sleep. A selective serotonin reuptake inhibitor would also be an option when a patient with ADHD has depression. As mentioned above clonidine has been used due to its effect on modifying emotions and behaviors that tend to worsen with stimulants. Other alternative treatments for ADHD mentioned by Szymanski and Zolotor (2001) include carbamazepine, divalproex, and risperdal for patients with the comorbidity of oppositional defiant disorder. Alternative non-pharmalogical therapies include biofeedback, strict diet regimens and dietary supplements, none of which are recommended as a main treatment regimen for ADHD patients (Mayo Clinic, 2005).

*The Prevalence of ADHD into Adulthood*

Up to 60% of children with ADHD will see the progression of this disease into adulthood (Elliott, 2002). Accordingly, the DSM-IV requires a diagnosis of ADHD in childhood in order to meet the criteria to diagnose ADHD in adulthood. However, it must be mentioned that not all children with ADHD are diagnosed correctly, which means they will fail to meet the diagnostic criteria for ADHD as adults. Symptoms of adult ADHD are described very similarly to those in the DSM-IV for children—some examples include; inattentiveness, impulsiveness, and/or restlessness. The most disconcerting aspect of adult ADHD is the tendency for comorbidities to occur in about 40-50% of patients. These include such problems as a high probability of substance abuse, bipolar disease, antisocial behavior disorders, and anxiety (Elliott, 2002; Montano, 2004). Other problems mentioned by Elliott include the difficulty that an adult with ADHD has to achieve higher education. Though it is not the ability to learn that is stunted by the disease, but the ability to focus and prioritize tasks necessary for learning. Also, adults with ADHD have difficulty maintaining relationships and are more likely to go through divorce. Because of problems with attention and completing tasks, adults with ADHD are more likely to lose their jobs due to poor performance. It is no wonder that many adults with ADHD develop depression due to these socioeconomic stressors. Psychosocial treatments for adults with ADHD were developed to address these unique problems (Safren, Sprich, Chulvick, and Otto, 2004). This article addressed the tendency for adults with ADHD to go through many failures in life and begin to develop a pessimistic outlook. The goal for their research was to develop programs to help adults with ADHD remain positive through education about the disease and coping skills. The use of support groups were also mentioned to reveal to patients that many adults with

ADHD go through similar experiences and should have certain expectations because of their disease.

### *Importance of Behavioral Therapy in the Multimodal Management of ADHD*

There are several reasons why behavioral therapy is an important aspect of the multimodal treatment of ADHD and should not be overlooked. An article by Steer (2005) made two important statements regarding behavioral therapy in the treatment of ADHD. The first is that behavioral therapy was shown to decrease the core symptoms in ADHD and some symptoms in ODD. Though medication also decreases the core symptoms of ADHD, behavioral therapy does so by a different mechanism of action therefore enhancing the effect of the stimulant. Secondly, behavioral therapy provides coverage for the time when stimulants are at sub-therapeutic levels until the next scheduled dose. Currently there is no stimulant medication available that is continuously effective for 24 hours a day and behavioral therapy can bridge that gap. Safren (2004) had two different reasons for the importance of behavioral therapy: 1) Behavioral therapy teaches patients the importance of organizational and attentive skills. 2) Behavioral therapy teaches children and parents to recognize positive behavioral patterns and avoid negative behavioral patterns. Medication alone can not accomplish those two concepts, not to mention organizational and attentive skills are invaluable skills for any person to master. Szymanski and Zolotor (2001) argue a disease, such as ADHD, that is defined in a set of behavioral terms should at least include a treatment regimen with a behavioral aspect to it. Furthermore, behavioral goals should be established in the treatment plan that addresses the patient's problematic behaviors. These goals should be achieved with medication and behavioral therapy together.

Another study compared behavioral therapy alone, stimulant therapy alone, and combined the two treatments as necessary (Dopfner, 2004). If the treatments were effective alone, no combination was needed. The results indicated 82% of children started on a stimulant medication needed behavioral therapy to be added onto their treatment regimen in order to obtain successful management. There is no doubt the standard of treatment for ADHD should at least be stimulant medication and behavioral therapy. However, in the past there was speculation about the effectiveness of behavioral therapy. In 1993, Swanson et al. stated in their article "... (others recommend) stimulants should always be used in combination with educational and behavioral interventions, but we found few references to empirical studies to support his common-sense recommendation". Later in the same article in the next to the last sentence, a disclaimer is offered stating "...major methodological weaknesses or shortcomings in research preclude clear answers to questions about the impact of combined treatment on children with ADD". An adequate amount of current research has since been done to rebuke the statements made in that 1993 article. Questions still exist as to which of the two (medication or behavioral therapy) is more effective alone. But many studies agree both have a synergistic effect when combined (Dopfner, 2004; Steer, 2005; Szymanski & Zolotor, 2001; Voeller, 2004).

#### *Barriers and Negative Attitudes Which Exist in the Treatment of ADHD*

Stein (2004) suggests negative attitudes exist towards the entire field of psychiatry that prevents PCPs from referring patients to psychiatrists. Adeyemi, Olonade, and Amira (2002) suggest some additional barriers exist that prevent PCPs referrals to psychiatrists. For example, lack of insurance coverage or decreased access to psychiatrists might persuade PCPs not to refer their patients to a psychiatrist. Another possibility is that PCPs have a lack of knowledge about the treatment of ADHD. The study went on to conclude that regardless of the barriers,



physicians' attitudes toward psychiatry need to be explored further and the barriers need to be broken so patients can receive the much needed care from the mental health system. If there is bias that exists towards the field of psychiatry from primary care physicians, this could be very detrimental to patients (Chadda, 2001). Chadda's study uncovered that many clinicians underestimate the comorbidities of various mental illnesses and therefore do not feel a referral is necessary, when indeed it is. This may occur even though a physician is in favor of mental health services. Therefore it was suggested that it is not the barriers to mental health that is the problem, it is that many clinicians do not fully understand the implications of many mental illnesses and consequently do not pursue psychiatric resources that are available (Chadda, 2001). A study conducted in Singapore disputes Chadda's theory. Kua, Parker, Lee, and Jorm (2000) compared views about mental health intervention in three prominent psychiatric conditions between PCP's and psychiatrists. Their results indicated that PCP's held more negative views for the outcome of a patient's health after the mental health intervention than did the psychiatrists, which held optimistic outcomes. These pessimistic views toward mental health interventions may be explained in Garralda's study (2001) which found that PCPs have inadequate training in mental health. Because of this lack of knowledge, negative views may develop instead of forming a view based on fact. This study concluded that better education in mental health is needed for PCP's as well as the development of psychiatric liaisons. Also, it was recommended that protocols be developed that PCPs can use as an aid when presented with a patient who has a mental illness. Hoagwood, Kelleher, Feil, and Comer (2000) agreed and also found that PCPs were less likely to use psychiatric referrals and offer mental health counseling than pediatrician's or psychiatrists. Their study also suggested that there may be a lack of mental health training for

PCPs and offered the idea that maybe there are not enough incentives available for PCPs to refer patients to mental health specialties.

With all of the blame on the PCPs for the lack of mental health referrals, it must be mentioned that psychiatrists should push insurance companies more, to secure reimbursement for their services (Kanapaux, 2002). This study goes on further to discuss that the efforts to offer behavioral therapy to ADHD patients must be a team effort, whereas both the PCP and psychiatrist aim to develop better liaisons among themselves. No one side can be to blame, both sides must work together to develop better methods of offering mental health services to patients that need it. This was shown in 2004 by a pilot study done by Rockman, Salach, Gotlib, et al. In their study, they developed a program to initiate liaisons between PCPs and psychiatrists. This was done because certain urban and rural areas had decreased access to mental health care facilities. After the liaisons were built, results proved that mental health care was enhanced. This study shows that mental health care can be established even in areas that lack resources. Furthermore, this study implies that it is the lack of planning and unwillingness of clinicians to collaborate that is the true barrier at hand.

### *Summary and Conclusions*

Although ADHD has been around since the 1800's and has been proven to be a legitimate neuro-psychiatric disease state, possibly stemming from an imbalance of chemicals in the brain, there are still negative perceptions among the public and health care professionals towards this disease. Symptoms of ADHD seem subjective; however, they are predictable and measurable by the DSM-IV. Therefore, an accurate diagnosis can be obtained, provided the assessment is done by a qualified health care professional that is familiar with the diagnostic guidelines. In fact, most PCPs are diagnosing this disease correctly, although this might be due to

an average of over-and-under diagnoses. There are obviously flaws that prevent PCPs from diagnosing and treating ADHD correctly. For example, there are many disease that mimic ADHD or are comorbid with ADHD.

The AAP put out recommended treatment guidelines for ADHD. Studies show that PCPs know these guideline, yet are not utilizing them in their ADHD treatment plans. PCPs are most likely to prescribe medication alone, when it is recommended by the AAP and many other literature sources that a behavioral therapy component should be included. Stimulant medication does work well in controlling the core symptoms of ADHD. However, behavioral therapy provides a means to control symptoms when the medication is below the therapeutic level as well as improve relationships with family and school performance. It is important to obtain an appropriate balance of medications and behavioral therapy to control the symptoms of ADHD early on in childhood. This will stunt the symptoms of adult ADHD, which can devastate all aspects of a patient's life including the workplace, social life, intimate relationships, self-esteem, self-image, and even the health of the patient. The problem that this study wishes to explore is the fact that research shows behavioral therapy is not being incorporated into the treatment plans of ADHD patients. Therefore, recommendations are not being followed. Although some barriers and explanations exist as to why recommendations are not being followed, studies have also shown that with the extra initiative of some researchers, these barriers can be overcome. This project questioned family practice physicians and psychiatrist about their attitudes and knowledge toward behavioral therapy in the treatment of ADHD and seeks to find out what barriers are preventing children from receiving the best possible care for an illness that is not curable, but treatable.

## CHAPTER III

### Methodology

#### *Purpose*

The purpose of this study was to examine and compare the attitudes and knowledge about behavioral therapy in the treatment of ADHD between family practice physicians and psychiatrists. This chapter will address the design of this study, the hypothesis on which this study is based, the study participants, the research questions of this study, the tools used for data collection, the validity of this study, and the techniques used to collect and analyze the data.

#### *Design and Variables*

Following the Scientific Method, a non-experimental design was used to compare two groups of health care professionals, family practice physicians and psychiatrists. This sample of participants filled out a questionnaire that consisted of multiple choice questions regarding the treatment of ADHD (the independent variable). Data was then obtained from returned questionnaires regarding the attitudes and knowledge about behavioral therapy in the treatment of ADHD (the dependent variable). There was no control group, random assignment, or treatment applied in this study.

#### *Hypotheses*

Alternative: Psychiatrists will be more knowledgeable and have a more positive attitude toward the use of behavioral treatment for ADHD patients than family practice physicians.

Null: There will be no difference in attitude or knowledge about behavioral therapy in the treatment of ADHD patients between family practice physicians and psychiatrists.

### *Population and Sample*

A one-hundred and sixteen subject, cluster sample revolving around the Northwest Ohio region was randomly selected to participate in this study from the population of family practice physicians and psychiatrists associated with the Medical University of Ohio. Out of the one-hundred and sixteen subjects, sixty-two were family practice physicians and fifty-four were psychiatrists.

### *Protection of Participants*

The Medical University of Ohio granted approval to do this research study and exempt status was granted through the Institutional Review Board. Permission to distribute surveys to family practice physicians and psychiatrists involved with the Medical University of Ohio was granted as well. Each participant in this study received a letter of consent (Appendix A) attached to each three-page survey (Appendix B) which explained the purpose of this research. Any associated risks were described to participants and participants were informed that their participation in this study was completely voluntary and anonymous.

### *Research Questions*

1. What are the gender and age demographics of the study participants?
2. How many years have the participants been in clinical practice?
3. What type medical specialty and setting do the participants practice in?
4. Do the participants manage the treatment of children with ADHD in their practice setting?
5. Do the participants know the current standard of care for patient with ADHD according to the AAP?

6. Regardless of their knowledge about the treatment of ADHD, how do the participants realistically manage children with ADHD in their practice setting?
7. Do the participants know what percentage of children will demonstrate ADHD symptoms into adulthood?
8. Do the participants know the complications associated with ADHD?
9. Do the participants know how often patients with ADHD should have follow up care?
10. Are the participants concerned about the stimulant medications they are prescribing to children with ADHD?
11. Regardless of the participants view on stimulant medication, do parents of children with ADHD demand medication to control their children?
12. Do participants value behavioral therapy as a component of treatment for a patient with ADHD?
13. Are the participants utilizing referrals to mental health care facilities for patients with ADHD?
14. What barriers prevent participants from using a mental health care referral?
15. Is there a significant difference between participants' knowledge about the treatment of ADHD and what they realistically do in their practice setting?

#### *Instrumentation and Procedure*

Using a multiple-choice questionnaire, surveys were randomly hand-delivered to a total of sixty-two family practice physicians and fifty-four psychiatrists associated with the Medical University of Ohio currently practicing in the Northwest Ohio region. These surveys were four pages long, each containing a one page letter of informed consent and limited information about

the project as well as three pages containing nineteen multiple-choice survey questions (Appendix A, Appendix B). Surveys were distributed in October, 2005 and again in January, 2006. Data from returned surveys were collected via mail until March 1, 2006. Participants received a stamped and addressed envelope in which they were to return the questionnaire anonymously through the US Postal Service to the Medical University of Ohio for further assessment and analysis. Participants were informed that their participation was voluntary and completely anonymous with the statement, “please do not place any identifying names, notes, comments, or other information on this questionnaire”. Participants were also verbally informed when the surveys were delivered to only complete this survey one time throughout the time period of October 2005 until March 2006. Forty-one out of the one hundred and sixteen participants returned the completed surveys by mail to the Medical University of Ohio.

The initial five questions of the surveys contained demographic data such as gender, age, number of years in practice, medical specialty, and type of office setting. The next seven questions (questions numbered six through twelve) dealt with the participants’ knowledge about treatment of ADHD. These questions were derived from various literature sources written about the treatment of ADHD, including recommendations from The American Academy of Pediatrics, which is considered to be the standard of care for the treatment of ADHD. Question #6 asked the participants if they managed the treatment of ADHD patients. Responses included the options yes or no. Question #7 asked respondents to identify the current standard of care option for ADHD. Responses included the options: stimulant medication alone, tricyclic antidepressant medication (TCAs) alone, behavioral therapy alone, stimulant medication and behavioral therapy, or TCA’s and behavioral therapy. The correct choice for this question was the answer “stimulant medication and behavioral therapy”. The distracters were based on treatment options

that have been documented in literature, but were not recommended by the AAP as the first line of treatment or the standard of care for ADHD. Question #8 was based on the realistic treatment regimen that respondents use in their practice. Responses included the options: stimulant medication alone, behavioral therapy alone, stimulant and behavioral therapy, non-stimulant medication, or no treatment. This question was derived with question #7 to compare if respondents realistically practice what they perceived the standard of care for ADHD to be. Question #9 asked respondents to identify the percentage of children that demonstrate symptoms of ADHD into adulthood. Responses were based on the range of less than twenty percent up to one hundred percent. The correct answer to this question was the answer range forty to sixty percent. Although, some literature stated there is incidence as high as sixty-five percent; therefore the next range, sixty to eighty percent, was also accepted as a correct response. Question #10 asked respondents to identify a distracter that is not a common complication associated with ADHD. Response options included: rejection from peer groups, symptoms are likely to resolve with time, substance abuse, continued disruptive behaviors, and academic/employment failure. The correct response was the answer symptoms are likely to resolve with time, this is a false statement. All of the other responses are considered common complications associated with ADHD. Question #11 asked respondents to identify the distracter which was not a side effect of stimulant medication used in the treatment of ADHD. Response options included: long-term addiction to the medication, sleep disruption, decreased appetite, exacerbation of anxiety, or weight loss. The correct response was long-term addiction to the medication, which is not a known side effect caused by stimulant medications used to treat ADHD. All of the other responses were valid side effects of stimulant medication used to treat ADHD. Question #12 asked respondents to identify how often patients with ADHD should



follow up with their primary care provider, assuming a correct diagnosis of ADHD was made and treatment with medication has been successful. Response options included ranges varying from once a month to once per year. An option stating follow up is not needed was also given. The correct response was three to five times per year.

The next seven questions were created to explore attitudes and perceptions towards ADHD. Question #13 asked respondents if they are concerned about prescribing stimulant medication to children in the management of ADHD. Responses options included the choices yes, no, or not sure. The following question, #14, asked respondents if they feel parents of children with ADHD demand medication to manage their children, even when the respondent did not recommend or discuss medication with the parent. Responses options included the choices yes, no, not sure, or not applicable. Question #15 asked respondents if they feel behavioral therapy is a necessary component to manage children with ADHD. Response options includes the choices yes, no, or not sure.

The last four questions of the survey were divided dependent on the respondent's medical specialty. Question #16 and #17 were meant for only family practice physicians to answer. Likewise, question #18 and #19 were meant for only psychiatrist to answer. These grouped questions were similar in nature and still pertained to the exploration of attitudes and perceptions about ADHD. The family practice physicians were asked how often they utilize a referral for behavioral therapy on a patient diagnosed with ADHD. Response options included, almost always, sometimes, rarely, or never. Similarly, the psychiatrists in question #18 were asked what percentage of ADHD patients should receive a referral from their family practice physicians to their office for behavioral therapy. Response options included percentages that ranged from less than twenty percent to one hundred percent. Question #17 asked family practice physicians what

barriers prevented them from using a referral for mental health purposes. Response options included lack of need for extra intervention, mental health services were not available, lack of insurance coverage, or not sure of the effectiveness offered by mental health referrals. The family practice physicians were asked to mark all of the answers that applied. A similar question was asked to the psychiatrists in question #19. The question asked psychiatrists what barriers they believe prevent family practice physicians from referring their patients to their practice for help with mental health. Response options were the same as given to the family practice physicians in question #17. Psychiatrists were to mark all the responses that were applicable.

Some of the respondents answered all four questions #16-19, instead of answering only the questions that pertained to their medical specialty, as the directions stated. In this instance, only the responses in their medical specialty were used in analysis.

#### *Data Analysis*

All data were entered and analyzed for significant results by using descriptive and inferential statistics. Data was analyzed using SPSS 11.5 and Excel for Windows software. The Fisher Exact Test determined statically significant results from the data using an alpha level of 0.05. Results of the data are explained in Chapter IV of this study.

#### *Internal and External Validity*

Because of the nature of the non-experimental design, there was no way of establishing a cause-and-effect relationship in this study. Only observations, inferences, and comparisons between the two different groups were analyzed. Therefore, since no control group or treatment existed, internal validity was not a relevant factor in this study.

External validity was encouraged by equally, hand-delivering the surveys so there was equal accessibility to all participants. Also, external validity was maintained by limiting the

information available to the participants about the nature and objectives of the study. However, the Hawthorne effect might have occurred due to the fact that questions involving the knowledge of the gold standard of the treatment of ADHD and questions pertaining to the participants realistic treatment of ADHD were both present on the survey. Respondents might have been persuaded to mark these questions with similar answers, so their knowledge and actions seem consistent; instead of what they realistically might carry out as a treatment in their office setting.

## CHAPTER IV

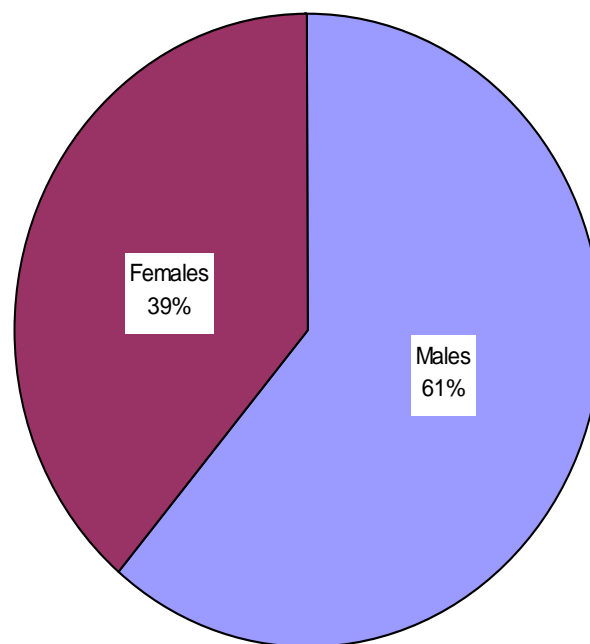
### Results

Of the 116 surveys distributed, 41 participants correctly filled out the surveys and returned the survey by mail. Therefore, the response rate from the participants as a whole was 35%. Of the 62 family practice physicians surveyed, 24 responded for a response rate of 38%. Of the 54 psychiatrist surveyed, 17 responded for a response rate of 31%.

#### *Demographic Data*

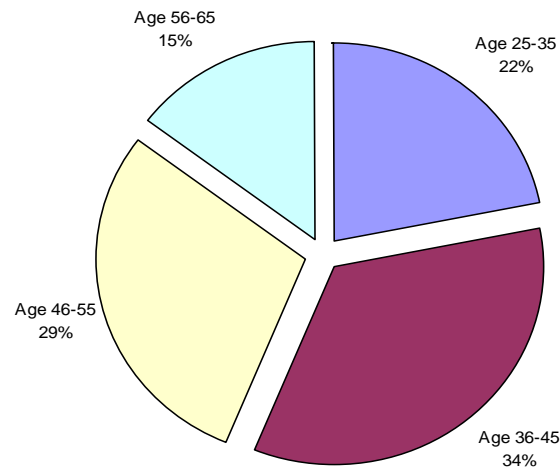
##### *Research Question 1*

The majority of the subjects were male (see Figure 1) and the most prevalent age group was between 36-45 years of age. There were no participants over the age of 65 years; however, all other age groups were well represented (see Figure 2).



*Figure 1.* Gender distribution of the participants.

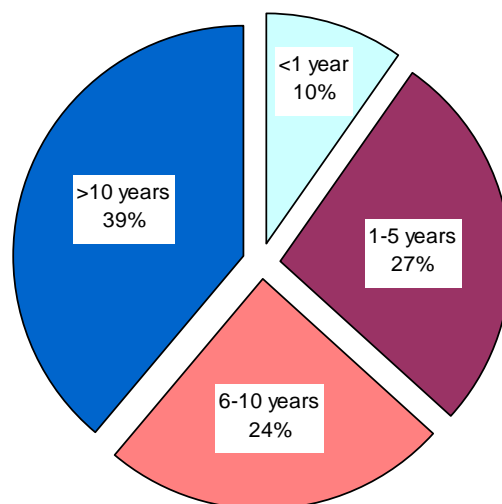
Participants were grouped by age clusters; 25 to 35, 36 to 45, 46 to 55, 56 to 65, and over 65 years of age.



*Figure 2.* Age distribution of the participants.

#### *Research Question 2*

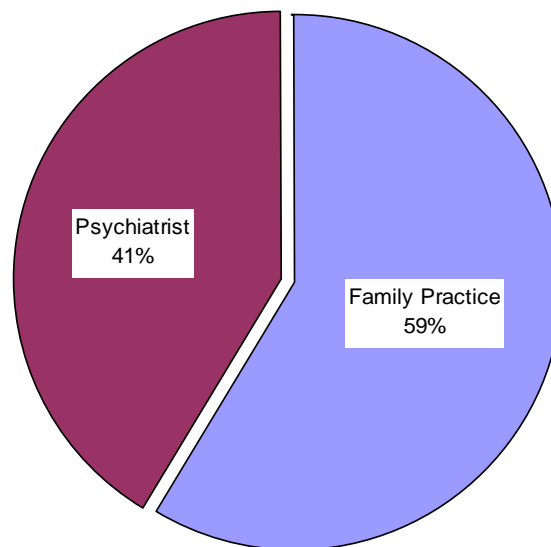
Participants were asked to disclose the number of years they have been in clinical practice (see Figure 3). The majority of the participants have been in clinical practice for over 10 years.



*Figure 3.* Number of years in practice by the participants.

### *Research Question 3*

59% of the participants were family practice physicians and 41% of participants were psychiatrists (see Figure 4). Most of the participants were in an academic type of setting, 14 (34%). None of the participants practiced in a Community Clinic setting or a Private/Single setting.

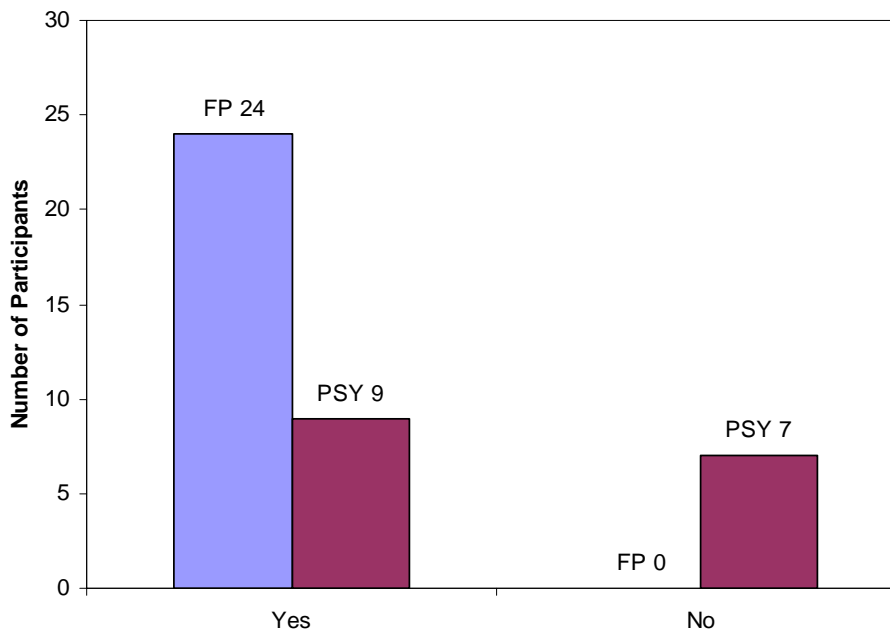


*Figure 4.* The medical specialties of the participants.

### *Findings*

#### *Research Question 4*

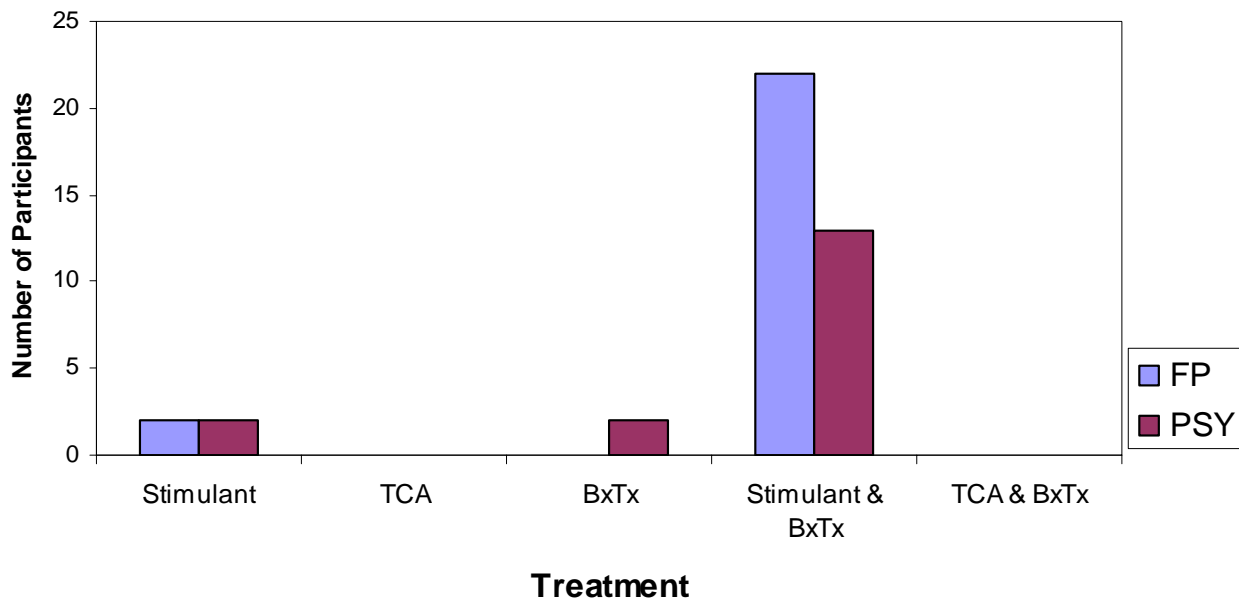
Participants were asked if they take part in the management of ADHD patients. 80% of the participants admitted they manage the treatment of ADHD patients, while 17% stated they did not. One participant left all of the options blank and did not answer this question. When the participants were divided into their medical specialties, all of the family practice physicians (FPs) responded that they do manage the treatment of ADHD patients; while only 53% of the psychiatrists (PSY) reportedly managed patients with ADHD (see Figure 5).



*Figure 5.* By specialty, the number of participants that manage ADHD patients.

#### *Research Question 5*

The participants were asked to recognize the AAP treatment guidelines for ADHD among various distracters. 85% of all the respondents recognized the correct response of “stimulant medication and behavioral therapy (Stimulant & BxTx)”. The most frequent incorrect answer was the option, “stimulant medication alone”; which was selected by 10% of all participants. By medical specialty, 92% of family practice physicians answered this question correctly, while only 76% of psychiatrists chose the correct response (see Figure 6). None of the participants selected the options that included tricyclic antidepressants (TCAs). A comparison using the Fisher Exact test was done between family practice physicians and psychiatrists regarding their knowledge about the treatment of ADHD. Results were not statistically significant; therefore, it can be deduced that there is no significant difference in the knowledge about treatment of ADHD between family practice physicians and psychiatrists.

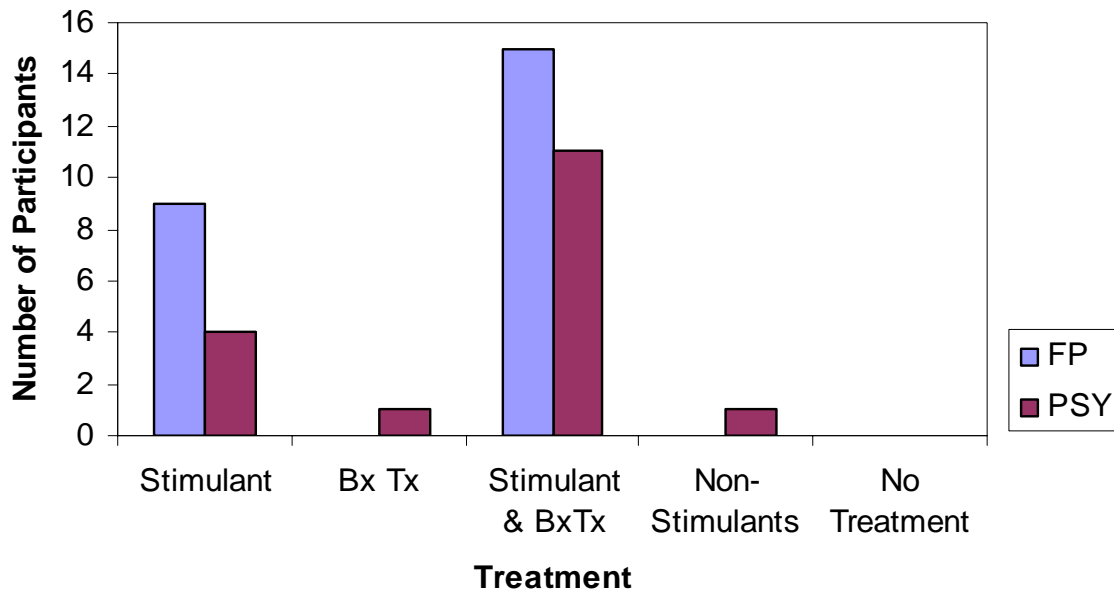


*Figure 6.* Participants' identification of the ideal treatment option for ADHD patients.

#### *Research Question 6*

Regardless of their knowledge about the treatment of ADHD, participants were asked to mark the treatment option they would most likely carry out in their practice. Family practice physicians were most likely to recommend stimulant medication and behavioral therapy to their ADHD patients at 63%; while the other 38% chose to use stimulant medication alone (see Figure 7). None of the family practice physicians chose tricyclic antidepressants, behavioral therapy alone, or no treatment as their management of an ADHD patient. Psychiatrists were also most likely to recommend stimulant medication and behavioral therapy at 65%. None of the psychiatrists chose the option "no treatment".

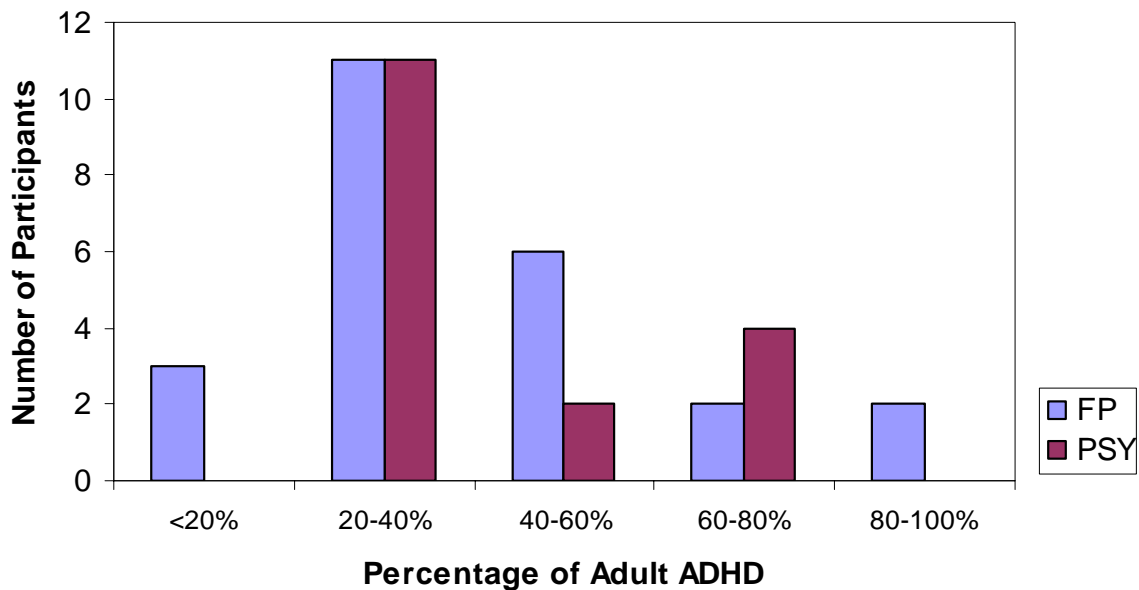




*Figure 7.* Participants' realistic treatment options for ADHD patients.

#### *Research Question 7*

Participants were asked to identify the percentage range of children that will demonstrate ADHD symptoms into adulthood. The most frequent answer among all participants was the range 20-40% (see Figure 8). 54% of the participants chose this option, which was incorrect. By specialty, 46% of family practice physicians and 65% of psychiatrists chose the range 20-40%. In actuality, about 40-60% of children with ADHD will go into adulthood with this disease. Only 20% of the participants recognized the correct response; by specialty, this included 25% of family practice physicians and 12% of psychiatrists. None of the psychiatrists selected the extreme percentage ranges of less than 20% or greater than 80%. Family practice physicians selected a wide variety of answers (see Figure 8). A comparison using the Fisher Exact test between the medical specialties was performed. Results were not statistically significant; therefore, it can be deduced that there was no statistical significance between the medical specialties regarding knowledge about the progression of ADHD into adulthood.



*Figure 8.* Participants’ identification of the percentage range of children with ADHD that have progression of ADHD into adulthood.

#### *Research Question 8*

Participants were asked to identify a list of complications of ADHD and select the option which was not a complication. 83% of participants were able to do this correctly and identified the distracter, which is not a complication of ADHD, “symptoms are likely to resolve with time”. The most common missed response by the participants at 12% was the option, “rejection from peer groups”, which is a common complication with ADHD. All of the participants correctly recognized the options “substance abuse” and “academic/employment” as common complications of ADHD (see Figure 9). All of the family practice physicians correctly recognized the option “continued disruptive behaviors” as a common complication of ADHD. A comparison using the Fisher Exact test was done between the medical specialties. Results were not statistically significant; which indicates there is no statistically significant difference in the participants’ identification of ADHD complications between the two medical specialties.

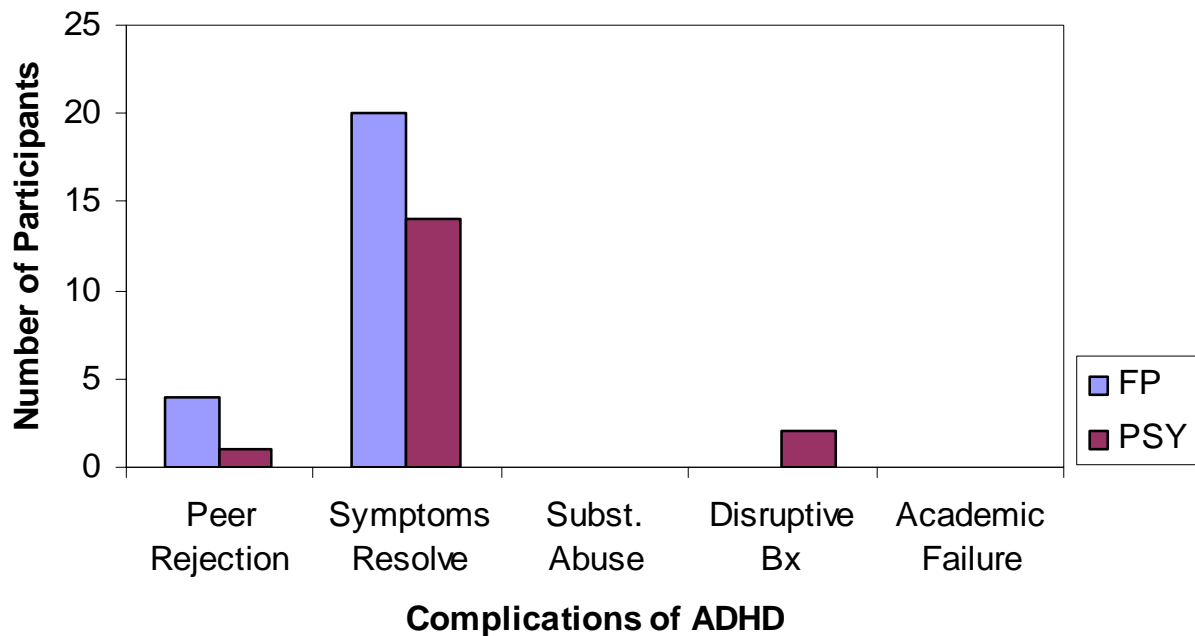
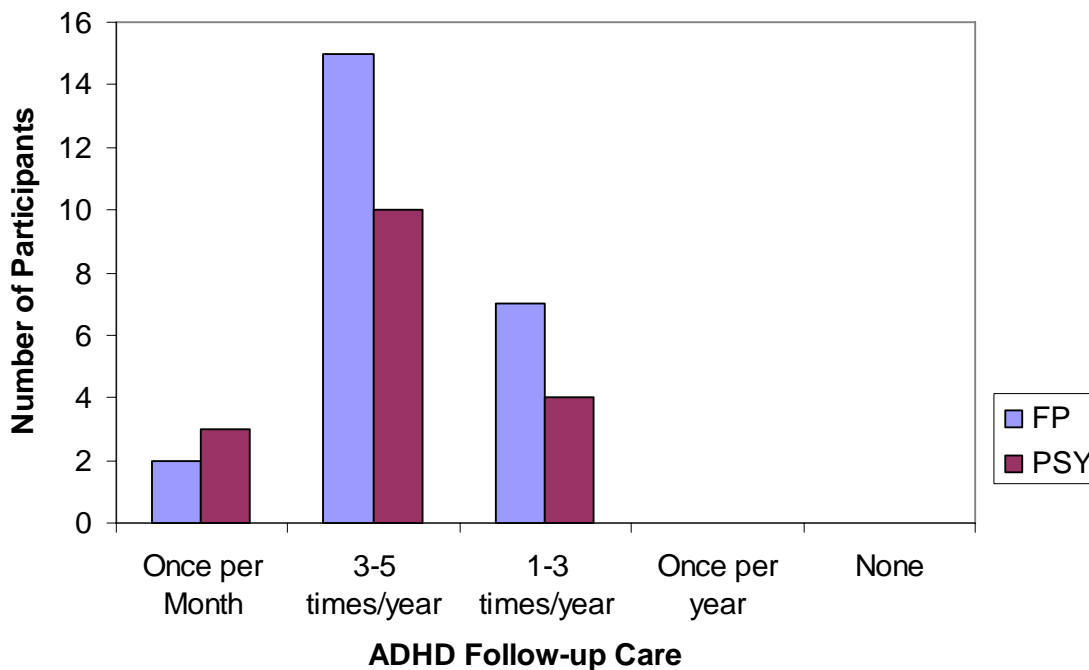


Figure 9. Participants' identification of complications not associated with ADHD.

#### Research Question 9

Participants were asked to identify the recommended number of follow-up visits a patient with ADHD should have, assuming a medication regimen has already been established. The majority of the participants (61%) recognized the correct range of 3-5 times per year (see Figure 10). The most common incorrect answer by the participants was the option 1-3 times per year, which was the selection of 27% of participants. None of the participants answered the choices, "once per year..." or "follow-up is not needed". A comparison using the Fisher Exact test between the medical specialties was performed. The results were not statistically significant; therefore, it can be deduced that there is no statistically significant difference in the participants' knowledge about the number of follow-up visits a patient with ADHD should have between the two medical specialties.

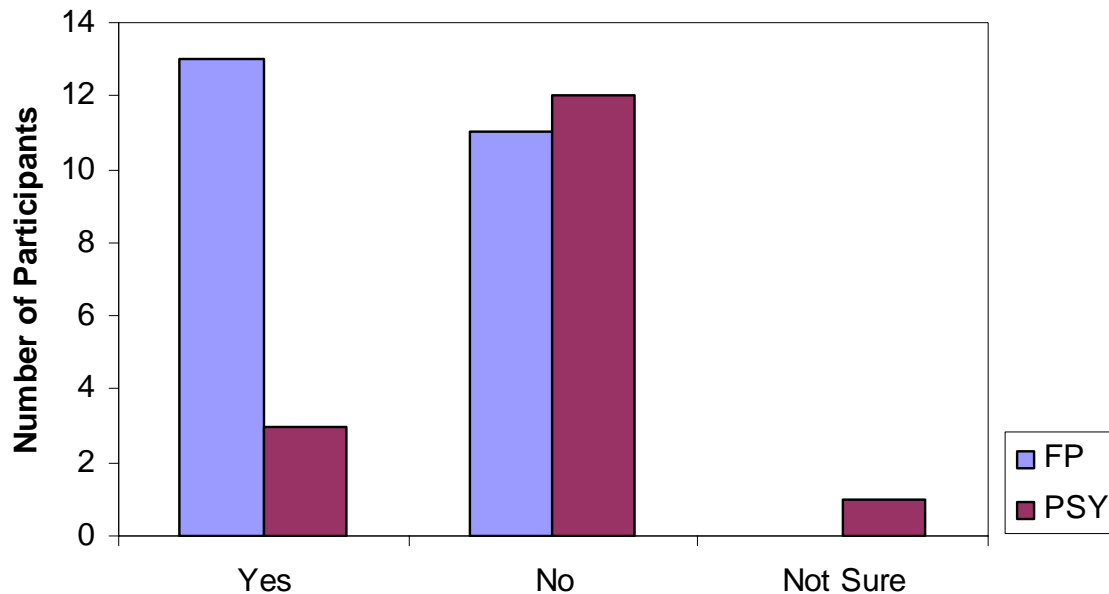


*Figure 10.* Participants' identification of the appropriate number of follow-up visits needed for ADHD patients.

#### *Research Question 10*

Participants were asked if they are concerned about prescribing stimulant medication to children with ADHD. 56% of participants stated they were not concerned about prescribing stimulants to children with ADHD. 2% of participants were ambivalent and chose the response "not sure". Though the majority of participants was not concerned; among the family practice physicians, 54% stated they were concerned about prescribing stimulants to children with ADHD (see Figure 11). This is compared to the 18% of psychiatrists that answered they too had concerns. A comparison using the Fisher Exact test between the medical specialties was performed. Results indicated a statistically significant difference between the two medical specialties ( $p=0.043$ ). This can be interpreted that there is a statistically significant difference

between family practice physicians and psychiatrist when prescribing stimulant medication to children with ADHD. Furthermore, family practice physicians are statistically more concerned about prescribing stimulants to children with ADHD than are psychiatrists.

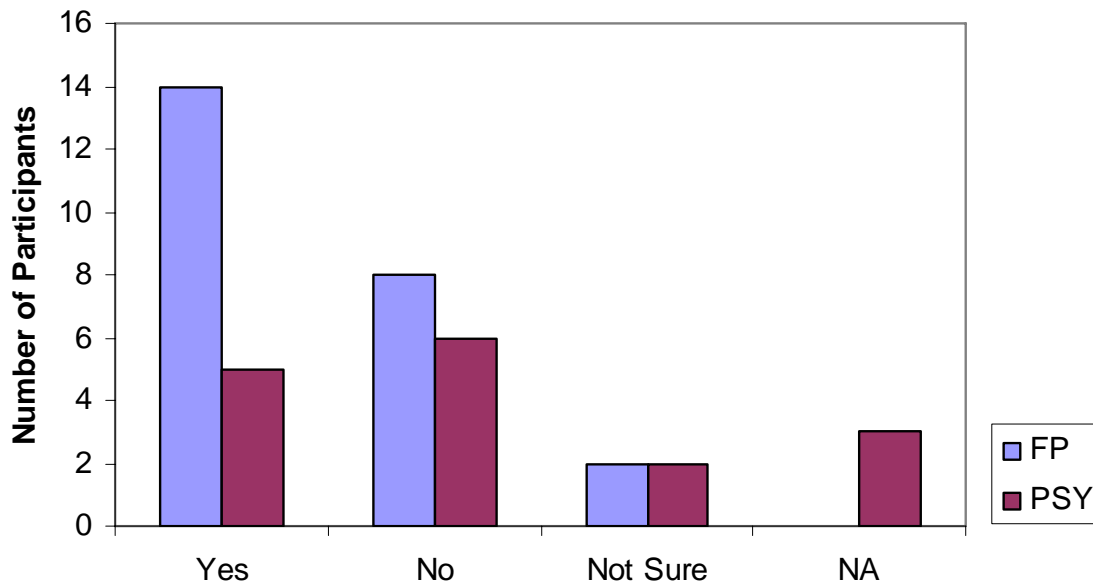


*Figure 11.* Number of participants that are concerned about prescribing stimulants to children with ADHD

#### *Research Question 11*

Participants were asked if they felt the parents of children with ADHD demand medication for their children when in the office. Answers among the participants were varied. The highest percentage of participants (46%) felt that parents do demand medication for their children with ADHD. However 10% of participants answered “not sure” and 7% answered “not applicable”. Among the family practice physicians, 58% agreed that parents do indeed demand medication when in their office. Psychiatrists were more varied in their responses, with 18% stating this question was not applicable (see Figure 12). A comparison using the Fisher Exact test between the medical specialties was performed. Results indicated there is no statistically

significant difference ( $p=0.058$ ) between the two medical specialties; therefore, both family practice physicians and psychiatrists generally feel that some parents do indeed demand medication for their child with ADHD.

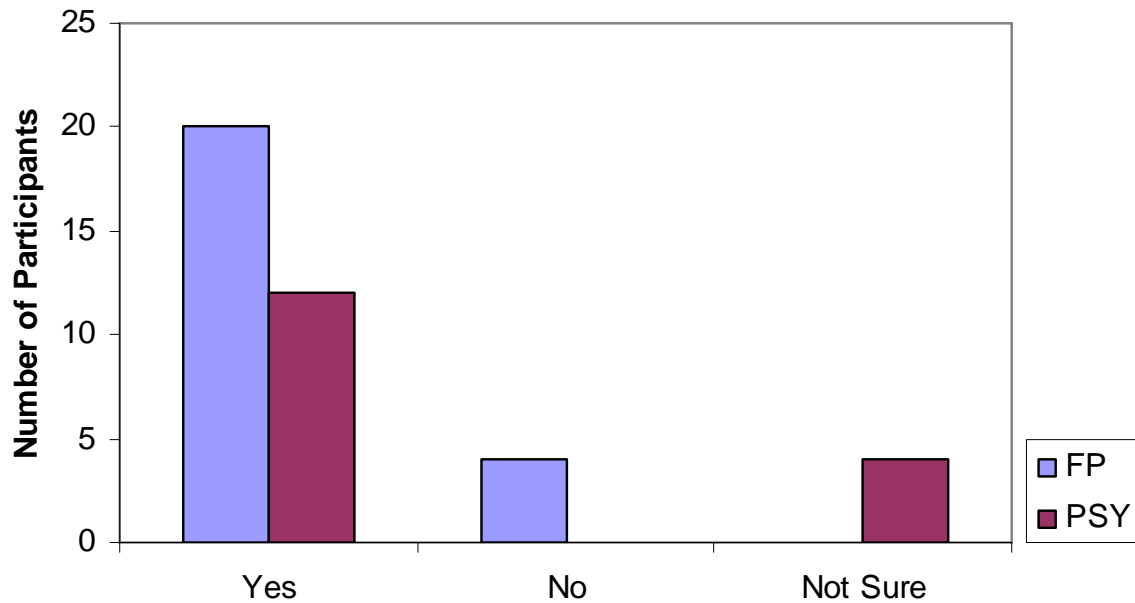


*Figure 12.* Participants' responses as to whether they feel parents demand stimulant medication for their children with ADHD.

#### *Research Question 12*

Participants were asked if they felt behavioral therapy is a necessary component in the treatment of ADHD. A majority of the participants agreed that behavioral therapy is necessary to treat ADHD (see Figure 13). However, 10% of participants responded that they were not sure whether or not it is necessary. 17% of family practice physicians disagreed, and answered that they felt behavioral therapy is not necessary in the treatment plan. This opposes the psychiatrists view, because none answered that behavioral therapy is not a necessary component of treatment. Nonetheless, 24% of psychiatrists did mark the choice, "not sure". A comparison using the Fisher Exact test was done to note if there was a significant difference between the two medical

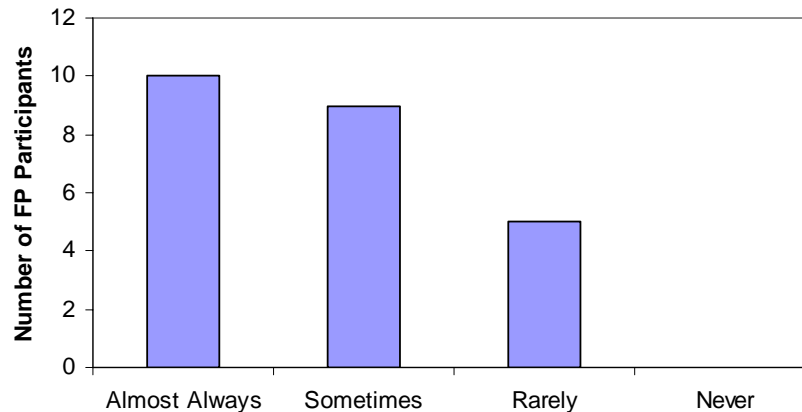
specialties. Results did not indicate significant results. An interpretation can therefore be made that there is no significant difference in attitudes towards the importance of behavioral therapy in the treatment of ADHD between psychiatrists and family practice physicians.



*Figure 13.* Participants' views when asked if behavioral therapy is a necessary component in the treatment of ADHD.

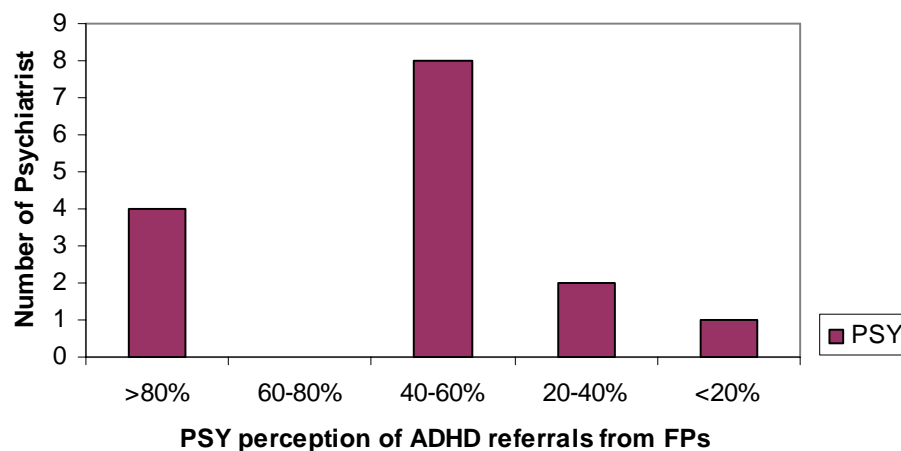
#### *Research Question 13*

Family practice physicians were asked how often they utilize a mental health referral in order for a child with ADHD to receive behavioral therapy. 42% of family practice physicians answered that a referral for the mental health services is almost always used when treating a child with ADHD (see Figure 14). Only 21% admitted using these referrals rarely and only if the patient case is extreme. None of the physicians marked the answer, "never, there is no need for extra intervention".



*Figure 14.* Family practice physicians' utilization of mental health referrals for ADHD patients.

Alternatively, psychiatrists were asked what percentage of ADHD patients should receive a referral for mental health care purposes. 46% of psychiatrists answered that family practice physicians should give a mental health care referral for an ADHD patient in about 40-60% of the cases (see Figure 15). Only 24% of psychiatrists thought a referral is necessary in greater than 80% of ADHD cases.



*Figure 15.* Psychiatrists' perceptions about the percentage of ADHD patients that should receive mental health referral.



### Research Question 14

Participants were questioned as to what barriers exist that prevent family practice physicians from utilizing a referral for mental health purposes in general. As noted in Figure 16, the highest percentage (33%) of family practice physicians responded that a lack of insurance coverage for mental health care is the major barrier that prevents them from utilizing a referral. However, there were a variety of responses, including combinations of responses.

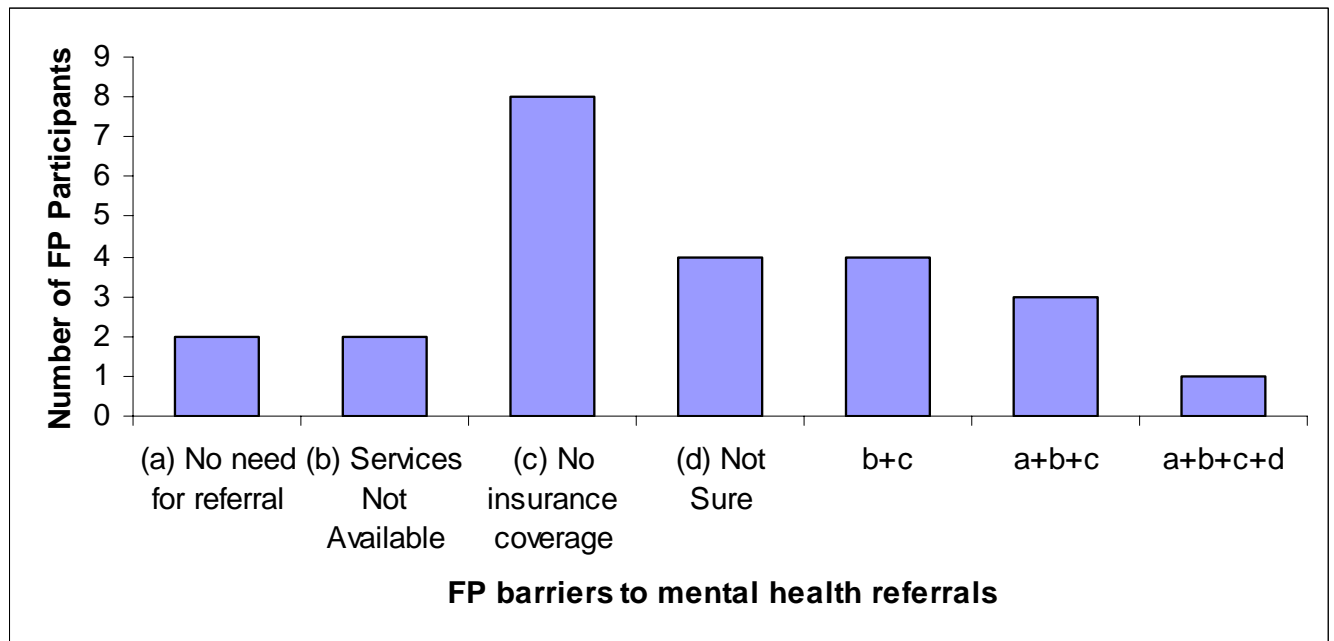
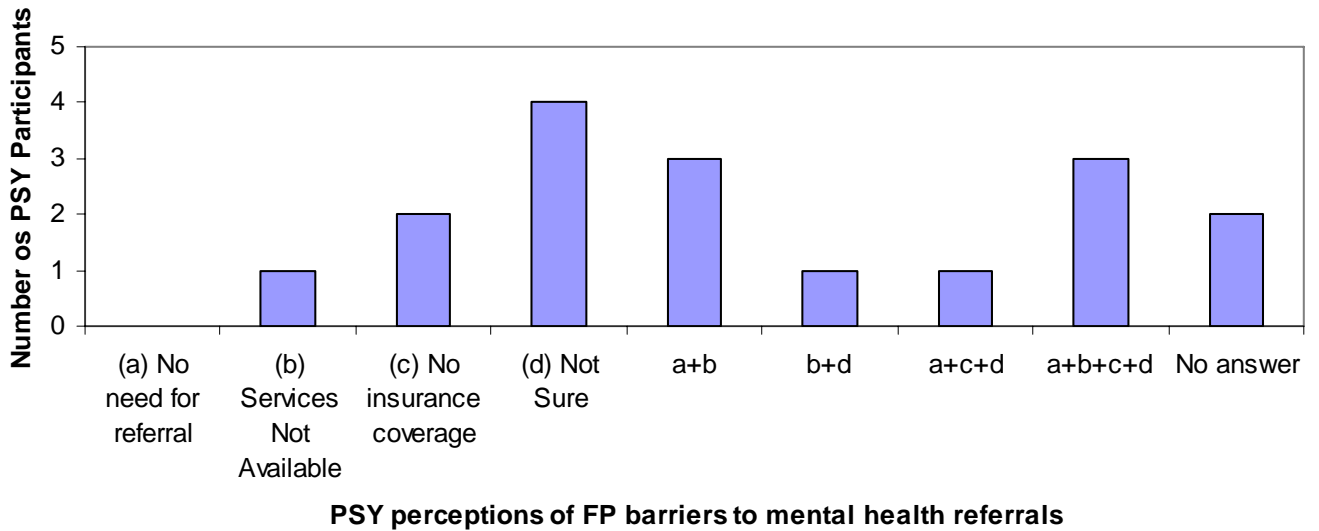


Figure 16. Barriers that prevent family practice physicians from using mental healthcare.

Similarly, psychiatrists were asked what barriers they think prevent family practice physicians from utilizing mental health care referrals. Again, a wide variety and combination of responses were gathered in the data and expressed in Figure 17. Psychiatrists as a group did not seem to favor one particular barrier, which indicates that there are many barriers that psychiatrists think prevent family practice physicians from utilizing a mental health care referral.



*Figure 17.* Psychiatrist perceptions of barriers that prevent family practice physicians from utilizing a mental health care referral.

*Research Question 15*

A comparison using the Fisher Exact test between the participants' knowledge about the treatment of ADHD and the realistic treatment plan that participants carry out in their practice was performed. The results of this were statistically significant and can be interpreted that participants know the correct AAP treatment guidelines; however, in their practice setting they are more likely to treat ADHD with medication alone. When these variables were compared between the medical specialties, no significant results were indicated. Therefore, a conclusion can be made that there is no statistically significant difference between the knowledge about the treatment of ADHD and the actual treatments given in the clinical settings between family practice physicians and psychiatrist. Both specialties known the treatment guidelines, but are treating patients with ADHD with stimulant medication alone.

## CHAPTER V

### Discussion

This chapter will summarize and discuss the findings of this research study. From the findings of this research, conclusions can be implied and inferences may be drawn. The recommendations for further research will be addressed in this discussion. This chapter will draw conclusions as to the important findings that this study has uncovered related to the initial problem statement and hypotheses.

#### *Findings*

##### *Demographic Research Questions 1-3*

The gender and age demographics were well distributed in this study. The majority of the participants were male; however, it is common knowledge that the field of medicine tends to be a male dominated field. Therefore, it is not surprising that 61% of the participants were male. The age demographics were equally distributed among this sample of participants. There were no participants over the age of 65 years, which was expected considering many adults do not work past the age of 65. The fact that only 21% of the participants were in the age range of 25 to 35 years of age is reassuring to this study. This is because all participants were associated with the Medical University of Ohio, which houses many students. It could be speculated if the youngest age range was the majority that some of the participants made students or residents working with them take the survey, instead of the intended participant. However, this does not seem to be the case based on the distributed of ages stated by the participants.

The distribution of the participants' years of experience in the clinical setting was reassuring. The results indicated an equal variety of clinical experience among the participants. This again, suggests that participants did not push students or residents to complete the survey

for the intended participant. The highest percentage of participants had been in practice for over 10 years. This could play an interesting role in the biases and attitudes towards ADHD. This is because ten years ago ADHD was viewed in a very different way than it is today. As mentioned in the literature, ADHD was put in a negative light in the 1990's by the media and negative perceptions about the disease evolved (Kanapaux, 2002). Participants that practiced in the 1990's might still hold on to some of those misperceptions about ADHD.

The demographic data containing the medical specialty of the participants was imperative for this research because this research aims to compare family practice physicians and psychiatrists' responses to the survey. Obviously, without knowing the medical specialty of the participants, comparisons between the two groups could not be performed. The type of setting that the participants practiced in was also important. Since the highest percentage of participants practice in an academic type of setting (34%), it could be assumed that those participants should be the most aware of the guidelines in the literature regarding ADHD. People in academic settings are often responsible for teaching others and may keep up with current trends in ADHD treatment better than those in other settings, where there is less pressure to stay involved with current literature.

#### *Research Question 4*

It was important for this study to know if the participants take part in the management of ADHD patients. 17% of the respondents stated they do not. Participants that are not involved with ADHD patients might know less about the disease and treatment of the disease than those who are involved with ADHD patients. It is interesting to note that all of the family practice respondents deal with ADHD patients. Therefore, the prevalence of ADHD as the most common psychiatric disorder in children is supported by this research study (Szymanski & Zolotor, 2001).

Only 53% of psychiatrists reported managing patients with ADHD. This may be due to the lack of referrals to their practice. As literature has documented, many patients with ADHD never see a psychiatrist for behavioral therapy (Kanapaux, 2004). The data from this research study supports that concept.

#### *Research Question 5*

This study found that 85% of the participants identified the correct AAP guidelines for the treatment of ADHD. Results from the data also indicated there was no difference in knowledge about the treatment of ADHD between family practice physicians and psychiatrists. Therefore, it is not the lack of knowledge about the treatment of ADHD that is a barrier towards patients receiving optimal care, which supports findings in the literature. It is surprising that only 76% of psychiatrists marked the correct treatment regimen. It was expected all of the psychiatrists would answer this question correctly due to the nature of their field and expertise in behavioral therapy. None of the participants answered responses including tricyclic antidepressants. This is promising, considering tricyclic antidepressants are considered as second or third line of therapy, or are used when an ADHD patient have a comorbid condition (AAP, 2001). Data from this study suggests that all participants clearly recognized tricyclic antidepressant as a distracter and not part of the gold standard of care for ADHD patients.

#### *Research Question 6, 12, & 15*

Recognizing that most of the participants are aware of the AAP treatments guidelines, it is surprising to find participants that do not follow these guidelines. For example 38% of family practice physicians treat their ADHD patients with stimulant medication alone. Dopfner (2004) did a study in which 82% of the children on stimulant medication alone ended up needing a behavioral therapy component added to the treatment regimen in order to achieve successful

management. Without underestimating the participants that do not follow treatment guidelines, it is reassuring that most of the participants do chose to follow the AAP guidelines in their practice when managing children with ADHD. Additionally participants admit the importance of incorporating behavioral therapy into their treatment plans.

#### *Research Question 7*

40-60% of children with ADHD will see progression of the disease into adulthood (Elliott, 2002). Percentages above 60% were noted by other sources; however, these sources were not found in reliable literature. In a disease that devastates many different aspects of a patient's life, it becomes of the utmost importance to get symptoms of this disease under control early on. If a clinician is not aware of the prevalence of this disease into adulthood, they may fail to realize the possible comorbidities and disdain the patient will undergo in the future. It is well known that physicians in general are not aware of the serious comorbidities that encompass many mental illnesses (Chadda, 2001). Data from this study supports that theory. 80% of the participants in this study were not aware of the percentage of progression of ADHD into adulthood. That is alarming when the implications are considered. Not only were participants unaware of the correct percentage, but most of the incorrect responses underestimated the percentage. Also surprising, was the percentage of psychiatrists that answered incorrectly (88%). This was not expected due to the nature of the profession, especially when dealing with chronic mental illnesses. Such an overwhelming statistic could mean that the question was written poorly. If data from this sample of participants is reflective of the healthcare population, more education is needed to inform health care providers of the prevalence of ADHD into adulthood. Possibly, if healthcare providers were more aware of the progression of ADHD into adulthood,

more aggressive treatment regimens would be implemented, including behavioral therapy component.

#### *Research Question 8*

In general participants in this study seemed able to recognize the complications associated with ADHD. 83% of participants were able to identify a distracter that was not a complication with ADHD. There are many complications with ADHD, as well as many comorbidities. It is important that healthcare professionals are able to recognize the complications of ADHD, so the treatment plan can be develop and adjusted accordingly. It is also worth repeating the fact that there is currently no lab work that tests for ADHD. ADHD is a disease that manifests in behavioral terms and therefore requires attentive observation in different settings to fully understand and treat it appropriately.

#### *Research Question 9*

In general, participants were able to correctly identify the recommended follow up schedule after a medication regimen has been implemented. This was encouraging considering Stockl, Hughes, Jarrar, Secnik, & Perwien (2003) found that adequate follow up is essential for the success of the treatment of ADHD. The results from this research question were not expected because of literature that states most children with ADHD do not receive adequate follow up (Rushton, Fant, & Clark, 2004). Furthermore, none of the participants chose responses at the lower range such as, “once per year” or “no follow-up is needed”. This indicates that participants are aware that frequent follow up is an important aspect when treating ADHD.

#### *Research Question 10 & 11*

To begin this section, it must be noted that the use of stimulant medication for children has brought up many complicated issues. In the 1990’s there was fear among healthcare

providers when prescribing schedule II drugs to children (Kanapaux, 2002). Such unfounded fears may still exist in health care professionals that have been in practice for greater than 10 years. This theory was discussed in the demographic findings as well. On the opposite side, some feel that parents of children with ADHD often demand medications to control their children with ADHD, even in cases where medication may not be indicated (Elliott, 2002). In summary, health providers have fears toward stimulant medication, while patients are demanding it. To further complicate matters there are many myths about the use of stimulants such as; stimulants are easily abuse, stimulants will stunt a child's growth, "drug holidays" are needed, etc. Regardless of the myths, the AAP (2001) and Szymanski and Zolotor (2001) strongly support the use of stimulants in the treatment of ADHD and document that stimulants are very safe for children to use. With the current literature noted, participants in this study still expressed significant fear in prescribing stimulants to children (54%), especially among the family practice physicians when compared to psychiatrists (  $p=0.043$ ). Psychiatrists did not have significant results and therefore do not seem to be fearful when prescribing stimulants to children with ADHD. Speculation suggests maybe psychiatrists are more knowledgeable when using medications in mental illnesses.

Also interesting in the data is that 58% of family physicians feel parents of children demand medication for their children with ADHD. This could be compared to the common knowledge that some patients see a physician when they are sick and demand an antibiotic, even when the illness is probably viral. Out of frustration, the physician gives the patient the antibiotic. In the same sense, it could be inferred that parents demand stimulants to control their children, even when a proper evaluation and diagnosis for ADHD may have not occurred. If the physician gives the patient a low dose of stimulation medication out of frustration, this could



explain why no behavioral therapy is incorporated into this “treatment plan”. However, this theory is purely speculation from the data.

#### *Research Question 13 &14*

The data from this research shows a wide distribution of responses when family practice physicians were asked how often they utilize referrals for children with ADHD. It seems that a referral for behavioral therapy for patient with ADHD might be done on a case-by-case basis among family practice physicians; instead of as a standard protocol in the treatment plan. This inference is based on the logic that if you are likely do a referral for behavioral therapy for one patient with ADHD, and the literature supports the use of behavioral therapy in ADHD, why not do it for all the patients with ADHD? If a referral is not being offered to all the patients with ADHD, then there is either a barrier that prevents certain patients from receiving a referral or the physician does not deem the referral necessary based on the case presentation.

The psychiatrists in this study also gave ambivalent responses as to how often a referral for behavioral therapy should be utilized in ADHD patients. Results from the previous research questions proved that the participants think that behavioral therapy is useful and try to incorporate it in the treatment of ADHD patients. The question still remains as to why referrals are not used for every ADHD patient. The majority of psychiatrists in the study stated these referrals should be used in 40-60% of ADHD cases.

The participants in this study gave various responses as to some of the barriers that prevent referrals from occurring in the mental health field in general. For example, lack of insurance coverage, lack of access to care, or the physician’s indecision of the effectiveness of the service provided. All of which are significant problems that need to be overcome and warrant further investigation.

### *Conclusions*

In conclusion, there was no significant difference in the knowledge base about the treatment of ADHD between family practice physicians and psychiatrists. Also, both medical specialties view behavioral therapy as important when treating ADHD. Both medical specialties are relatively familiar with the AAP treatment guidelines for ADHD. There was a statistically significant difference between family practice physicians and psychiatrists when asked about the concerns of prescribing stimulants to children. However, the significance is not the main focus of this research study. It should be noted that both medical specialties lack the knowledge about ADHD and the occurrence into adulthood. Again, this will just be noted because that is not the main focus of this study. Therefore, with these results discussed, the alternative hypothesis, “Psychiatrists will be more knowledgeable and have a more positive attitude towards the use of behavioral treatment for ADHD patients than family practice physicians”, shall be rejected. Likewise, the null hypothesis, “There will be no difference in attitude or knowledge about behavioral therapy in the treatment of ADHD patients between family practice physicians and psychiatrists”, shall be accepted in this research project.

### *Recommendations*

Future studies in the area of ADHD should be conducted in order to offer some relief to patients that are not receiving adequate management. Though this research project does not address adult ADHD specifically, more research needs to be done regarding health care professional’s perceived lack of knowledge in this area. Studies should specifically address how health care professionals will prevent the symptoms of ADHD from manifesting in adulthood. Furthermore, our healthcare system should expect this disease to be chronic and have longer term treatment plans available.

This researcher believes there is still work to be done to break down the negative perceptions about mental illness through research. ADHD has had many negative perceptions according to the literature, though not seen in this study. Although negative perceptions about ADHD have slowly declined over the years, the negative stigma is still present. Studies need to be done to convince others in the media and even others in the healthcare field, that mental illnesses are debilitating and often chronic conditions that require intense attention and aggressive management.

Finally, ongoing research should be done to break the barriers that prevent primary health care providers (PCPs) from utilizing referrals. PCPs are not qualified to deal with mental illness, nor should they be. The scope of psychiatry is vast and requires specialization. Therefore referrals play an important role when bridging the gap between PCPs and psychiatrists. Regardless of the barriers, healthcare providers have an oath to do what is best for the patient which means we must find a way through research to break such barriers down.

#### *Significance for Physician Assistants*

Similar implications stated in the above recommendation section can be applied to the clinical realm. Since the history and core of the physician assistant profession stems from family practice, it is fair to state physician assistants (PAs) will deal with ADHD patients in clinical practice with regularity. This gives PAs the opportunity to follow ADHD patients on a long-term basis and to serve as educators for families and patients with ADHD. With the appropriate care and management of these patients by PAs, negative attitudes and bias towards this illness can be broken down. Finally, PAs are meant to represent healthcare in a team setting. This mentality should serve as bridge to facilitate the much needed contacts with psychiatric referral sources for patients with ADHD.

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## Appendix A

My name is Amy Newman, PA-S. I am a Physician Assistant student at the Medical University of Ohio. As part of my graduate education, I am conducting this research project in order to better understand the attitudes and knowledge about behavioral therapy in the treatment of attention deficit/hyperactivity disorder among various health care providers. You are invited to participate in this study because of the location and specialty of your health care practice. To participate, you will only need to fill out the attached questionnaire. There will be complete privacy of the information you supply because your name will never be used or associated with the project. You are free to choose to participate or not participate, and you may stop your participation at any time. Whether you participate or not will have no detrimental effect on your career as a health care provider. Completing and returning this questionnaire indicates that you agree to take part in this research. Please do not place any identifying names, notes, comments, or other information on this questionnaire or on the return envelope that is provided for you. If you have any questions about this research, please contact Amy Newman, PAS at (419) 383-5889. Thank you!

*The following survey was developed to assess the knowledge and attitudes among primary care physicians and psychiatrists regarding the treatment of Attention Deficit/Hyperactivity Disorder (ADHD). Your assistance in this academic research is greatly appreciated. For the following questions please circle the single best answer to the best of your ability.*

**Demographic and Practice Characteristics**

*Questions 1-5 are for demographic and practice characteristic purposes only.*

1. What is your gender?
  - A. Male
  - B. Female
2. What is your age?
  - A. 25-35
  - B. 36-45
  - C. 46-55
  - D. 56-65
  - E. 65+
3. How long have you been in clinical practice?
  - A. < 1year
  - B. 1-5 yrs
  - C. 6-10 yrs
  - D. >10 yrs
4. What is your medical specialty?
  - A. Family Practice
  - B. Psychiatry
5. What setting do you primarily practice in?
  - A. Office
  - B. Hospital
  - C. Community Clinic
  - D. Academic
  - E. Group
  - F. Private/Single

**Knowledge about the treatment of ADHD**

*Questions 6-12 are based upon treatment options for ADHD.*

6. In your medical specialty do you manage the treatment of children with ADHD?
  - A. Yes
  - B. No
7. What is the current standard of care option for ADHD?
  - A. Stimulant medication alone
  - B. Tricyclic antidepressant medication alone
  - C. Behavioral therapy alone
  - D. Stimulant medication and behavioral therapy
  - E. Tricyclic antidepressant medication and behavioral therapy
8. When managing a patient diagnosed with ADHD, what regimen would you realistically select for your patient?
  - A. Stimulant medication alone
  - B. Behavioral therapy alone
  - C. Stimulant medication and behavioral therapy
  - D. Non-stimulant medication

9. What percentage of children with ADHD demonstrate symptoms into adolescence/adulthood?  
A. <20%      B. 20-40%      C. 40-60%      D. 60-80%      E. 80-100%
10. **ALL** of the following are complications associated with ADHD **EXCEPT**:  
A. Rejection from peer groups  
B. Symptoms are likely to resolve with time  
C. Substance abuse  
D. Continued disruptive behaviors  
E. Academic/Employment failure
11. All of the following are side effects of stimulant medication for ADHD **EXCEPT**?  
A. Long-term addiction to the medication  
B. Sleep disruption  
C. Decreased appetite  
D. Exacerbation of anxiety  
E. Weight loss
12. How often should patients with ADHD follow-up in your office once a correct diagnosis and management with medication has been made?  
A. once per month  
B. 3-5 times per year  
C. 1-3 times per year  
D. once per year to re-evaluate and make appropriate adjustments  
E. follow-up is not needed once appropriate management has been established

**Attitudes and Perception towards the treatment of ADHD**

*Questions 13-19 explore attitudes and perceptions toward ADHD. Please answer these questions to the best of your knowledge.*

13. Are you concerned about prescribing stimulant medication to children to manage ADHD?  
A. Yes  
B. No  
C. Not sure
14. Do you feel that parents of children diagnosed with ADHD demand medication to manage their children even when you do not recommend medication?  
A. Yes  
B. No  
C. Not sure  
D. Not applicable
15. Do you feel behavioral therapy is a necessary component to manage ADHD patients?  
A. Yes  
B. No  
C. Not sure

**Questions 16 & 17 are for family practice physicians only:**

16. How often do you utilize a referral (for behavioral therapy purposes) for a patient diagnosed with ADHD?

- A. Almost always, it is part of a complete treatment regime in my practice.
- B. Sometimes, referrals are case dependent.
- C. Rarely, only in severe patient presentations.
- D. Never, there is no need for extra intervention.

17. In general, what barriers prevent you from using referrals for mental health purposes?

**Check all that apply:**

- A. Lack of need for extra intervention.
- B. Mental health services are not available.
- C. Lack of insurance coverage for mental health referrals.
- D. Not sure of the effectiveness offered by mental health referrals.

**Questions 18 & 19 are for Psychiatrist only:**

18. About what percentage of the ADHD patients should receive a referral to your office from their family practice physician for behavioral therapy as part of their management.

- A. > 80%
- B. 60-80%
- C. 40-60%
- D. 20-40%
- E. < 20%

19. In general, what barriers do you think prevent family practice physicians from utilizing referrals to your practice?

**Check all that apply:**

- A. Lack of need for extra intervention.
- B. Mental health services are not available.
- C. Lack of insurance coverage for mental health referrals.
- D. Not sure of the effectiveness offered by mental health referrals.

***Thank you for taking time to participation in this survey! Please return this completed questionnaire by October 15, 2005 in the self-addressed, stamped envelope provided to:***

**Amy Newman  
3000 Arlington Ave  
Toledo, Ohio 43614**









**Objective:** This study explored attitudes and knowledge about behavioral therapy in the treatment of attention deficit/hyperactivity disorder (ADHD) between family practice physicians (FPs) and psychiatrists. Other topics included adult ADHD, the barriers of mental health referrals, and stimulant medication.

**Method:** After IRB approval, multiple-choice surveys were hand-delivered to 116 participants, including family practice physicians and psychiatrists, in the Northwest Ohio region. Surveys were anonymously returned by mail and data was analyzed for significance using SPSS.

**Results:** There was no significant statistical difference in the identification of the AAP treatment guidelines for ADHD between the two medical specialties. There was also no significant statistical difference in the acknowledgement of the importance for behavioral therapy in the treatment of ADHD between the two medical specialties. Significant results indicated FPs are hesitant to prescribe stimulant medication to children with ADHD. Lastly, it was discovered that participants in general did not realize the prevalence of ADHD into adulthood.

**Conclusion:** It was found that there was no difference in the attitudes or knowledge about behavioral therapy in the treatment of ADHD between FPs and psychiatrists. This study agrees with other literature in that clinicians know the correct treatment guidelines for ADHD yet are not following them in practice either due to barriers in the systems that prevent mental health referrals or other unknown bias.