

2010

# Evaluating the Accuracy of Childhood Mental Health Diagnosis in a Clinical Setting

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Evaluating the Accuracy of Childhood Mental Health Diagnosis in a Clinical Setting

Mary Margaret Moses

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### **Acknowledgements**

I have never struggled with an assignment more in my academic career than this research assignment. I could not wrap my head around the fact that I had such a huge project weighing heavily on my dream. There were times I felt so paralyzed that part of me began to feel like my dream was unattainable. I have spent more time in the library laboring over these pages. During the past 6 months to a year, everything has taken a backseat in my life including my time I spend with my family and friends.

The one person that comes to mind that has helped me through all of this is DG. Without his constant support I do not know if I could have gotten this done. I have never met someone that wanted to see me achieve my goals as much as I did. There were so many times I wanted to push everything out of my mind, but he kept asking me about my progress and made sure I was putting my time in. There was no negativity in his voice when he would talk me through it. I never once felt like I could not do it. His words, “you’ll get it done,” may sound simple, but the conviction and belief in his tone that I actually would get it done was startling to me. There was no doubt in his mind that I was capable of writing this thesis. I have never had anyone in my life truly believe in me the way he has. He has made me push ahead, reach my goals, and strive for more. I can’t express how thankful I am for his love and encouragement.

Next I absolutely must acknowledge my dental girls for allowing me to leave work early, skip out on activities, not answer their frantic phone calls and texts all because I was in the library. They made sure I had dinner and a place to go to for laughs and hugs! Their support was very much needed and appreciated.

Lastly - my family for getting me to this point. Thank you Uncle Randy for all of the motivational quotes, Aunt Meg for all of the encouragement, Seester and Paul for starting my college journey (Go Bonas!), and Robbie for helping me calculate all of my results!

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**Abstract**

The objective of this study is to evaluate the symptoms and diagnoses of boys under the age of 17 with Attention Deficit Hyperactivity Disorder (ADHD) in comparison with girls of the same age group who exhibit similar symptoms but are diagnosed differently. Much of the research that has been done shows significant gaps between male/female ratios of those diagnosed with ADHD. It is uncertain whether males are diagnosed more frequently with ADHD because of biological factors or social norms. Many researchers suggest that females are under diagnosed and exhibit internalizing symptoms of ADHD, and thus are diagnosed differently. The study is an archival study from 2009 and would be based on observations in a clinical setting. The researcher will compare the symptoms and primary diagnosis of boys diagnosed with ADHD and girls who exhibit ADHD symptoms but have been given an alternate primary diagnosis.

**Evaluating the Accuracy of Childhood Mental Health Diagnosis in a Clinical Setting**

ADHD, Attention Deficit Hyperactivity Disorder, has become a popular diagnosis among young America in our modern world. “ADHD is the most common neurodevelopment disability in childhood with a prevalence of 3%-5% in the school-aged population,” (Mercugliana, 1999). Research has shown that children are commonly diagnosed with ADHD between the ages of 8 and 9 years old (DeNisco, Tiago, & Kravitz, 2005). Various ratios have shown extreme differences in the diagnosis of ADHD among boys and girls. In 2004 Rafalovich found that males were diagnosed with ADHD 5:1 over girls (2004). Young males who exhibit ADHD symptoms are referred for clinical services 5-9 times more than females (Barkley, 2006). The reason why boys are diagnosed more frequently is not certain. “As for gender, the epidemiological breakdown has an estimated male-female ratio of five-to-one (Arnold, 1996), but the prevalence of the disorder in females remains unclear” (Biederman et al. 1999). The purpose of this study is to evaluate the accuracy of symptoms and diagnosis of female children less than 18 years of age in a clinical setting.

This research will attempt to answer six main questions. Are girls diagnosed with ADHD less than boys? Are girls’ symptoms of the disorder different than boys? Do girls get diagnosed with an alternate disorder even when ADHD symptoms are present? Why are girls not being diagnosed with ADHD even when they have the symptoms? Lastly, if there is a significant gender gap in the diagnosis of the disorder than what can be done to bridge this gap, furthermore how does this affect Mental Health Professionals and treatment for the patients?

### **Review of the Literature**

The content of the review of literature focuses on five main areas. First, definitions of terms will be explained to help the reader further understand the content of the research. The different categories of ADHD will be thoroughly explained as well as disorders that are thought to be associated with ADHD. Other mental disorders that were used for the purpose of this study will be defined as well.

Next, the structure and criterion of the DSM-IV-TR for the diagnosis of Attention Deficit Hyperactivity Disorder, ADHD, will be explained along with a history of the disorder and how it has evolved over the years. Third, male/female ratios concerning the diagnosis of ADHD in children will be presented as well as the comparing and contrasting of various ADHD symptoms among the genders. In addition, assessments will be evaluated that further discuss the clinical diagnosis and findings of ADHD in males as compared with ADHD females. The last piece of research that will be discussed is an examination of why researchers believe there is a gender gap in regards to the diagnosis of ADHD. In other words, why are boys thought to be over diagnosed and girls are believed to be under diagnosed? Neurobiological, genetic, social norms, and symptoms listed in the DSM-IV-TR are all factors that contribute to the reasoning of ADHD being diagnosed more frequently in boys. Ultimately, the review of the literature will provide further understanding of the many dynamics and research that has already been done, as well as raising questions for further investigation of this particular study.

**Definition of Terms**

**Attention Deficit Hyperactivity Disorder (ADHD)**- A simple definition for ADHD can be summarized as follows, “Characterized by pervasive and impairing symptoms of inattention, hyperactivity and impulsivity” (Lahey et al., 2007). The disorder is said to impair academic performance, substance use and abuse, social problems at school/work and at home (Biederman et al. 1999). The DSM-IV-TR provides a full categorical classification of the disorder which will be thoroughly explained later in the reading.

**Oppositional Defiant Disorder (ODD)**- Defined in the DSM-IV-TR as “a pattern of negativistic, defiant, disobedient, and hostile behavior toward authority figures that persists for at least 6 months (Criterion A) and is characterized by the frequent occurrence of at least four of the following behaviors: losing temper (Criterion A1), arguing with adults (Criterion A2), actively defying or refusing to comply with the requests or rules of adults (Criterion A3), deliberately doing things that will annoy other people (Criterion A4), blaming others for his or her own mistakes or misbehavior (Criterion A5), being touchy or easily annoyed by others (Criterion A6), being angry and resentful (Criterion A7), or being spiteful or vindictive (Criterion A8). ADHD and ODD can often co-occur much of the time which can make distinguishing the two disorders separately difficult (Tuvblad, 2008).

**Conduct Disorder (CD)** – Defined by the DSM-IV-TR as “a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated (Criterion A).” CD often occurs in early adolescence after a child has been diagnosed with ODD earlier in life. CD is thought to be the most severe of the behavior disorders and can lead to other psychiatric disorders in adulthood (Tuvblad 2008).

**Disruptive Behavior Disorder Not Otherwise Specified (NOS)-** Individuals diagnosed with this disorder in the DSM-IV-TR do exhibit disruptive impairment but are said to not fall into any specific criteria for either ODD or CD.

**Adjustment Disorder-** The DSM-IV-TR defines an adjustment disorder as a “psychological response to an identifiable stressor or stressors that results in the development of clinically significant emotional or behavioral symptoms.” An adjustment disorder can be broken down into 6 subtypes: Depressed Mood, Anxiety, Mixed Anxiety and Depression, Disturbance of Conduct, Mixed Disturbance of Emotions and Conduct, and Unspecified. Based on the clinical findings of this research, 3 subtypes will be evaluated more closely.

**Adjustment Disorder with Mixed Disturbance of Emotions and Conduct-** The DSM-IV-TR states that the individual in this subtype has both symptoms of an emotional disturbance such as depression or anxiety as well as disturbance of conduct such as truancy or fighting.

**Adjustment Disorder With Depressed Mood-** As outlined by the DSM-IV-TR, individuals in this subtype are characterized by extreme sadness and feelings of hopelessness.

**Adjustment Disorder Unspecified-** The DSM-IV-TR indicates that this subtype should be used when symptoms cannot be classified in one of the outlined subtypes of an Adjustment Disorder.

**Mood Disorder NOS-** The DSM-IV-TR states that this particular disorder is one the disruption of mood is the predominant feature but it cannot be specified into either depression or bipolar, thus the disorder is “not otherwise specified.”

**Depressive Disorder NOS** – This disorder is a subtype of a Mood Disorder as outlined in the DSM-IV-TR. The primary characteristics of this disorder have depressive symptoms but do not have the major criteria of a “Major Depressive Disorder, Dysthymic Disorder, Adjustment Disorder With Depressed Mood, or Adjustment Disorder With Mixed Anxiety and Depressed Mood.”

**Comorbidity** – When two mental disorders are occurring at the same time. Often one is present at an earlier point in life and the other disorder shows up later in life. For example, some researchers believe that ODD and CD are comorbid to ADHD in boys and Depressive and Anxiety Disorders are comorbid to ADHD in girls (Tuvblad et al. 2009).

**Rule Out (R/O)** – A rule out is a diagnosis given to patients who have an alternate primary diagnosis but the possibility of another is present.

### **History of ADHD**

Over the years ADHD has been revised and modified. The name and the characteristics of the disorder have been changed numerous times over the past few decades (Mercugliano, 1999). “Diagnosis of ADHD and other mental disorders are always in a state of flux, always contested and contestable. This condition is demonstrated by the many symptoms and namesakes ADHD has owned over the last century and also by the unclear epidemiology of the disorder” (Rafalovich, 2004). Some early research illustrates that there was no such thing as a hyperactive disorder (Kanner, 1957). Originally, what is now known as ADHD was said to be a hyperkinetic disorder. From the early 1900’s until the 1950’s, hyperactivity was associated with brain damage. Psychologists believed that children had frontal lobe lesions which led to hyperkinetic disorders. Despite the fact that no such evidence was ever found, this was the theory

(Sandberg, 1996). By the time the century was halfway over, this notion was being challenged. Instead, Stella Chess hypothesized that it was a brain dysfunction rather than damage. Chess was a major believer in what was being called, “hyperactive child syndrome.” She also believed that much of the disorder would clear up by puberty (1960). By the end of the 1960’s the disorder had been classified as having a variety of symptoms with overactive motor skills as the most prevalent one. At this time, Europe and North America started to have two different views of recognizing and diagnosing hyperactivity. Europe still linked hyperkinesis closely with brain damage and rarely found a need to diagnose the disorder. On the contrary, North America did not concentrate on brain damage in their criteria and focused more on genealogical factors. The disorder was more commonly diagnosed in North America than that of Europe (Sandberg, 1996). A brief overview of the evolution of what we now know as ADHD will be explained further.

The earliest references to Attention Deficit Hyperactivity Disorder were by Dr. Heinrich Hoffman in 1865. He coined the name “Fidgety Phil” to depict those children with inattentive, impulsive symptoms we see in ADHD today. Hoffman believed that the cause of this impairment in children was due to poor parental control. His poem describing this sort of child fits perfectly with our modern diagnosis of ADHD.

George Frederic Still’s disagreed with Hoffman’s theory that children who displayed these characteristics were a result of poor parenting. Instead, he believed that the behavior was due to a genetic or biological defect. As far back as the early 1900’s, Children that would be viewed as hyperactive today were said to have a “defect of moral control” which occurred biologically or through some pre or postnatal defect/injury (Still, 1902). Still believed that children who functioned with these impairments could be classified into three sectors: “(1) defect of cognitive relation to the environment; (2) Defect of moral consciousness; and (3) defect in inhibitory

volition” (1902). He noted that these behaviors varied across children of the same age and typically began in children at 8 years of age. Like the majority of the research found today, Still recognized that a greater portion of boys exhibited these behaviors than girls (3:1) (Still, 1902). Based on Still’s findings one can already assume we have answered the first research question that boys are diagnosed with ADHD more than girls. However, this is based on studies conducted over 100 years ago, so further investigation is needed. Still created the platform for which ADHD was built upon. George Frederic Still addressed a clinical distinction between two medical terms of his time: idiocy and imbecility. The difference between the two terms is unclear and often they coincide with each other.

Idiocy was said to develop during the very early stages of development. “Idiocy is mental deficiency or extreme stupidity, depending upon malnutrition or disease of the nervous centers occurring before birth” (Still, 1902). Still’s believed that the idiot was not someone to poke fun at but was to be seen as a “medical phenomenon” (1902). Charles Mercier had similar views as Still in that he believed “the idiot” should be cared for and not discriminated against. He believed that individuals who fell into this category were developmentally impaired and were in danger of hurting themselves and thus must be watched closely (Rafalovich, 2004).

Imbecility was a similar medical diagnosis to Idiocy in the early twentieth century. The criterion under this diagnosis included those who could not “function within conventional institutional structures and engaged in behaviors that were socially inappropriate, often criminal.” The main difference between the two terms is that a child diagnosed as an Imbecile displayed much of the same criterion as an Idiot but to a lesser degree (Rafalovich, 2004). Children diagnosed with Imbecility were not as much a danger to themselves or others like in the definition of Idiocy, but they struggled socially. It was believed that, like Idiocy, these

individuals could not live by themselves without supervision. The main difference was that an Imbecile could adapt to his “physical environment” but not to his “intellectual environment” (Rafalovich, 2004). George Frederic Still’s was the first to associate idiocy and imbecility behaviors in regards to children (Rafalovich, 2004).

Another exploration in the diagnosis of ADHD stems from the term encephalitis lethargic (EL) or “sleepy sickness.” This psychological term is thought to be the framework for the problems we associate with ADHD today including: “inability to concentrate, over activity, and impulsivity” (Rafalovich, 2004). The EL outbreak occurred at the end of World War I and was thought to have irreversible damage. Children that were at one time mild mannered and attentive students in the classroom were now characterized as emotionally unstable, impulsive, resisting authority, depressed, cruel, quick tempered, and had noticeable impairments to their memory, motor activity, and attention (Kessler, 1980). With the understanding of EL, a more physiological approach was considered, as opposed to a moralistic view, in regards to behavior disorders among children. This is important to our modern understanding of hyperactivity disorders in that it provided the “neurologically oriented” framework for what we now know as ADHD (Rafalovich, 2004). As time went on, more was discovered about the child who suffered from EL and the behaviors they exhibited were divided into two types as identified by Edward Strecker (1929).

The two types of behavior exhibited under the post-EL Child were number one, motor behavior and the second, disorderly conduct behaviors. Motor activities were evaluated based on “unintentional and outside the control of the child.” Children were thought to have poor impulse

control and impaired judgment. There was no reasoning or thought behind their actions. These children were overactive and “constantly in motion.” They hardly slept and disrupted their households and classrooms (Strecker, 1929). These features describe the hyperactive and impulsive features seen in the modern definition of ADHD. Strecker’s thought on these children being constantly in motion coincides with the exact definition of ADHD Hyperactive-Impulsive Type. Under this category, one of the characteristics describes those with ADHD as if “driven by a motor.” However, the earlier accounts for this disorder do not account for the different subtypes that have formed within the disorder over the years. The main focus during the 1920’s and 1930’s was hyperactivity and impulsivity.

The second part of Strecker’s postulate focuses on the child’s conduct and malicious intent. He believed that these children often stole, participated in acts of violence, and dishonesty all for the benefit of personal gain. In an earlier study, Strecker believed the children that suffered from the EL epidemic would inevitably suffer from irreversible brain damage that would ultimately lead to hyperkinetic disorder (1929) which is presently known as ADHD. The thoughts that these kids have malicious intent and steal do not seem to be reflected as strongly in the present understanding of ADHD. Instead these characteristics are consistent with the symptom patterns of Oppositional Defiant Disorder and Conduct Disorder. These two disorders are believed to co-exist with ADHD or be a later result to a person who had ADHD earlier in life.

Discourse about hyperkinetic disease began in the early 1930’s. Criteria of the disease looked much like ADHD. Children were said to have a form of psychosis that made them extremely restless and distracted. The disorder usually began during ages 3 or 4 in a child’s life and the severity of the disease peaked at 6 years old (Hoff, 1956). Presently, the DSM-IV-TR

states that it is difficult to diagnosis a child with ADHD before the age of 4 (2005). During the 1930's, these children were viewed as chaotic and careless in their play. They often had toys that were broken due to poor impulse control and "excessive motor activity." These children showed impairment in their social interactions with peers and were often overly aggressive. When reprimanded, these children became oppositional with authority (Sandberg, 1996). Despite lack of supporting evidence, the disease was again said to leave these children with brain damage beyond repair which inevitably led to their disruption at home and in school (Barkley, 2006). Today it is still questioned by some whether children that have behavior problems have suffered some sort of brain damage either due to prenatal defects or some other kind of injury such as illness. However, there is little evidence showing this to be true. This belief is mostly looked at with girls that are considered to have ADHD because girls with the disorder typically have lower IQ scores and more academic impairment than that of boys (Staller & Faraone, 2006).

It has been and currently is debatable among some whether hyperactivity in children is the result of a poor upbringing or due to biological and neurological factors. One thing that began to be agreed upon among clinicians was the implementation of pharmacotherapies. Between the years of 1937-1941, "medication therapy (particularly stimulants) for behaviorally disordered children in particular" was introduced. Amphetamine's were used and showed marked improvements in children who exhibited disruptive behaviors. By the 1970's stimulant medications were the popular solution for treatment (Barkley, 2006). Today, we see evidence of this as well.

During the course of this research, all evidence from the early 1900's to present day described children who are now labeled, ADHD. The combination of all of the above symptoms and findings has led to the present understanding of the behavior disorder. The previous research

laid the foundation for further study and treatment for young people and their caregivers today. Children who were once viewed as having either some sort of head injury or brain tumor, have now been clinically diagnosed with a name specific disorder that is not due to the direct physiological effects of a general medical condition or substance use. Over the past 40 years, ADHD has become the most commonly diagnosed behavior disorder among children (Mercugliano, 1999). From the very beginning, the focus was primarily on boys who exhibited these behaviors. Over the past 100 years not much has changed in terms of gender and Attention-Deficit Hyperactivity Disorder.

### **ADHD Defined Today**

The DSM is constantly changing and previous editions have been revised and rewritten. Several disorders listed in the manual are believed to have gender biases even after the revisions have been made. With boys being diagnosed so much more frequently than girls it is no wonder that the question is raised that the DSM contains gender biases in the diagnostic criteria of ADHD. In 1980, DSM-III listed symptoms of inattention, impulsivity, and hyperactivity, and required that three inattention and three impulsivity symptoms, and two hyperactivity symptoms, be present to attain a diagnosis. The revised third edition of the Diagnostic and Statistical Manual (DSM-III-R; APA, 1987), described a single list of fourteen items, incorporating symptoms of inattention, impulsivity, and hyperactivity, with an eight-item cut-off for diagnosis. Any eight symptoms were sufficient to obtain a diagnosis. (Levy, McStephen, Hay, 2001) The DSM-IV came about in 1994 and used field trials for the analysis of ADHD. Different categories were devised to classify an ADHD diagnosis: Predominately Hyperactive-Impulsive, Predominantly Inattentive, and Combined subtypes of ADHD. Both the Predominantly Hyperactive-Impulsive

and Predominantly Inattentive subtypes require that six out of nine symptoms, specific to those domains, be present for diagnosis. Symptoms causing impairment must be present before 7 years of age, and significant impairment from symptoms must be present in two or more settings – at school, and/or work, and/or home. (Levy, McStephen, Hay, 2001)

Presently, the DSM-IV-TR describes those diagnosed with Attention Deficit Hyperactivity Disorder into four subtypes: Predominantly Inattentive Type, Predominantly Hyperactive Impulsive Type, Combined Type, and Not Otherwise Specified (NOS) (DSM-IV-TR, 2005). In order to be diagnosed into one of these subtypes an individual must have six or more of the features described within the category for a period of at least 6 months. The symptoms must also be severe in that they affect the individual's interactions to the point of impairment at work/school and at home. Symptoms must also show a deficiency in the ADHD sufferers developmental level (DSM-IV-TR, 2005).

Inattentive type is described in nine criteria:

- (a) Often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities
- (b) Often has difficulty sustaining attention in tasks or play
- (c) Often does not seem to listen when spoken to directly
- (d) Often does not follow through on instructions and fails to finish school work or chores (not due to oppositional behavior or failure to understand instructions)
- (e) Often has difficulty organizing tasks and activities
- (f) Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (schoolwork or homework)
- (g) Often loses things necessary for tasks or activities (toys, books, pencils, assignments)

- (h) Is often easily distracted by extraneous stimuli
- (i) Is often forgetful in daily activities

Hyperactivity-Impulsivity is explained in nine criteria:

- (a) Often fidgets with hands or feet or squirms in seat
- (b) Often leaves seat in classroom or in other situations in which remaining seated is expected
- (c) Often runs about or climbs excessively in situations in which it is inappropriate
- (d) Often has difficulty playing or engaging in leisure activities quietly
- (e) Is often “on the go” or often acts as if “driven by a motor”
- (f) Often talks excessively
- (g) Often blurts out answers before questions have been completed
- (h) Often has difficulty awaiting turn
- (i) Often interrupts or intrudes on others (DSM-IV-TR, 2005)

The Combined Type for this disorder recognizes those individuals who display both criteria for the Inattentive Type and Hyperactive-Impulsive Type. The “Not Otherwise Specified” category include individuals diagnosed at seven years of age or older and who are marked by “sluggishness, daydreaming, and hyperactivity” (DSM-IV-TR, 2005).

The DSM-IV-TR recognizes that 3%-7% of school aged children are diagnosed with the disorder. It was observed that the age of onset conflicts with specific criteria particularly when diagnosing a child with ADHD NOS. The DSM-IV-TR states that “it is difficult to establish a diagnosis in children younger than age 4 or 5 years” yet the criterion for someone with ADHD

NOS states that onset must be 7 years of age or older (2005). Thus, does this mean that clinicians technically have a two year window to diagnosis ADHD either Inattentive Type or Hyperactive-Impulsive Type all others must be seen as ADHD NOS? It will be addressed later in this research that most of the Children diagnosed with ADHD in 2009 were diagnosed Not Otherwise Specified.

Similarly to previous studies, the DSM-IV-TR notes that there is strong supporting evidence showing the genetic linkage to children diagnosed with ADHD. However, other factors are noted to contribute as well such as family, school adjustments, and social influences. (2005). Thus one can hypothesize that many factors can contribute to a child with a diagnosis of ADHD including adjustments that are difficult to accept for the child like school or changes within the family dynamics.

### **Gender Ratios**

It is recognized that the majority of individuals in the DSM field trial for ADHD were males (Achenbach, 1991). It is thought that male children display more criteria and to a more severe degree to ADHD as outlined in the DSM-IV than do females (Barkley, 2006). In contrast, a study conducted in 1999 illustrates findings that show a higher frequency of ADHD in boys, but Criterion A for DSM – IV between boys and girls was not significant (Pineda, 1999). Thus, girls and boys in this example exhibit the same ADHD symptoms. The most up-to-date criterion for gender ratios among children with ADHD is in the DSM-IV-TR.

Like previous findings, evidence of gender ratio's pointing mainly towards males with ADHD is apparent in the DSM-IV-TR. It is noted that males are diagnosed more frequently by ratios of 2:1 and 9:1 depending upon the type and setting in which the child is diagnosed. For

example, male children are said to be clinically referred more often than females (DSM-IV-TR, 2005). Several studies have been done that support this evidence.

Research concludes that boys are said to be three times more likely to have ADHD than girls. It is reported that boys are 5-9 times more likely to be seen with ADHD among clinic referred children (Barkley 2006, p. 90). The Clinicians Practical Guide to ADHD supports the above evidence and states, "It affects boys approximately four times more frequently than girls," (Mercugliano, 1999). As you can see, various proportions have been concluded when evaluating the diagnosis of ADHD across genders. "An average of 6:1 is most often cited for clinic-referred samples of children" (Ross & Ross, 1982). Several assessments were conducted from various researchers that evaluate male/female ratios in regards to ADHD.

### **Behavior Scales**

A Conner's Teacher Rating Scale (CTRS) was conducted to assess hyperactivity in a sample of 14,000 elementary school children (Trites, Dugas, Lynch, & Ferguson 1983). The CTRS is used in schools, mental health clinics, and other facilities to assess behavioral symptoms and needs of children. Through routine screening from individuals, in this case teachers, that see the child on a regularly basis one can measure hyperactivity in children who are believed to have ADHD. CTRS can provide insight to therapy options which would lead to establishing treatment goals and objectives. Overtime, one can measure progression and development by administering a CTRS after action such as therapy has been implemented into the child's life (Trites et al. 1983). For the purpose of this research, gender differences in the findings of ADHD were observed. According to Trites and his fellow researchers, it was found that boys exhibited more hyperactivity with a ratio of 3:1 (1979).

The Conner's Teacher Rating Scale was given again in 1984 but this time was administered to the parents or caregivers. It was recognized that female symptoms differed from males in regards to conduct. DeHass and Young found that hyperactive girls had fewer conduct problems than hyperactive boys (1986). Parents who used the Conners Parent Rating Scale, also reported more aggressive behaviors in hyperactive boys than hyperactive girls (Ackerman et al., 1983). Levy and Hay conclude that the research done by DeHass and Young is inconsistent and this is partly due to the small sample sizes used for girls and also because they believed those girls symptoms were viewed differently and thus diagnosis requirements for ADHD differed from that of boys. (2001).

To further support this evidence, Arnold Ackerman believed that parents viewed their boys as hyperactive while their teachers did not. Parents believed that the boys were more aggressive than girls (1983). Again, Levy and Hay conclude that this is due to "inconsistency in the findings in the assessment of ADHD symptoms" (2001). In other words, one can infer that gender biases correlate with the diagnosis and ultimately the treatment of children, particularly in dealing with ADHD.

The Rutter B Scale for teachers was conducted on 940 New Zealand children and found that boys exhibited hyperactivity 8:1 (McGee, Williams, Bradshaw, & Chapel, 1985). The Rutter B. Scale is similar in the CTRS in that it evaluates and assesses behaviors. It can measure a variety of behavior and emotional disorder. It can be used to measure depression and autism. In this case the teachers are measuring symptoms for ADHD in childhood based on their observations. In comparison with the above studies using the CTRS, Seija Sandberg noted that findings from these scales was "likely to be influenced by differences in measurements and sampling

characteristics” (1996). In other words, boys tend to be overly represented as hyperactive and aggressive and girls experience the opposite. Another important factor in examining these assessments is that both the Rutter B. Scale and the CTRS, girls are scored by their caregivers above the cut-off for hyperactivity; therefore one would assume that they are hyperactive than boys. However, when observed, these girls are less hyperactive than the boys which leads to the speculation that caregivers and teachers tend to over-rate girls in regards to hyperactivity (1996).

All of these factors contribute to the diagnosis of ADHD being swayed towards the male population. The above rating scales can be used to “assume that this gender difference is related to some fundamental biological factors, it also has been proposed that ADHD may be under diagnosed in girls (McGee and Feehan, 1991) and hence the acceptance gender ratio may be biased” (Pineda et al., 1999).

### **The ADHD Female**

One such reason for an under diagnosis of ADHD could be due to inattentive symptoms that appear to be more common in females. It is thought by several researchers that ADHD does not show up the same way in girls. Girls appear “spacey, unfocused, or inattentive.” They also tend to have trouble with organization and remembering things (Adams 2007). It has been found that girls are more socially withdrawn and have more internalizing symptoms than do boys (Brown 1989). Thus, it has been noticed that girls get may fall into the category of ADHD Inattentive type. “Recent research has found that girls are 2.2 fold more likely than boys to have inattentive subtype ADHD” (Staller and Faraone, 2006). Staller and Faraone believed that females may be under diagnosed because they manifest predominately inattentive symptoms and less

hyperactive-impulsive symptoms (2006). The first place that ADHD is usually identified is in the school systems by teachers. It is believed that girls are less likely to be referred because they do not cause as many problems in the classroom (Adams, 2007). In Adams article, *Girls & ADHD*, he identifies six signs to look for in girls with ADHD.

First, boys are marked with the disorder by their inability to sit still. They continually get up out of their chair during class. On the contrary, Adams says that girls do not usually exhibit this type of behavior. Instead they “express their restlessness verbally.” These girls tend to continually talk even when they are repeatedly asked to stop. According to Adams, this could eventually lead to sign number two which suggests that girls with the disorder struggle in their peer relationships (2007).

Adams second sign of girls with ADHD suggests that they can be overbearing and bossy to their peers causing friendships to burn out quickly. Boys with the disorder are usually more physically aggressive and this is typically more acceptable behavior. When an ADHD girl is frustrated she can become verbally aggressive. She may interrupt and dominate over her peers. In the beginning these girls can seem outgoing, but by the end of the week they may find themselves not welcome by peers because they tend to lack an understanding of social cues (2007).

Similarly to boys, Adams suggests that sign number three is the inability to pay attention. Girls will often have trouble paying close attention to detail and step-by-step directions. Adams uses the example of a teacher explaining fractions to the class and the ADHD girl being quick to say, “I don’t get it” because being able to listen for several minutes at a time is a struggle. Often

these girls will be fidgeting with their pencils or anything they can get their hands on while sitting at their desk (2007). Then again, sign number four suggests that an ADHD girl may not even be able to find her pencil.

Sign number four suggests that these girls tend to be exceptionally messy. Many kids are known to be messy at times, but Adams says that the clue here is when the mess is consistently disorganized to the point that the child cannot locate important papers or even a pencil when needed. Organizational problems are present in both boys and girls with ADHD. The reason this is a key feature to note is because girls are not typically disruptive so recognizing messiness helps identify the ADHD female. In correlation with sloppiness, females will show a deficit in their school assignments.

Unfinished work is sign number five for these young girls. It is often thought that gender biases and social norms have contributed to the lack of ADHD diagnosis in females. Adams states, “girls may try hard to mask their disorder, teachers don’t always realize how much they are struggling to finish assignments” (2007). These girls are typically shy and often the teacher does not recognize that they have trouble because they do not stand out like the hyperactive impulsive boy with ADHD does. “Girls behavior is often misunderstood as immaturity or lack of academic ability rather than as ADHD” (Adams, 2007). These students may know the material but because of their inattention and inability to focus, they need more time to complete their work (Adams, 2007).

Lastly, sign number six describes ADHD girls as being extra sensitive and emotional. They tend to cry over the smallest incidents. Girls tend to seek approval from their peers and teachers.

Adams suggests that a female with ADHD will try to compensate for her behavior and this can leave her emotionally exhausted and vulnerable. It is important for these girls to feel important to her team and class. Often girls with this behavior will not be diagnosed with ADHD but will be viewed as being a typical overly sensitive girl (Adams, 2007).

Ultimately, Adams believes that ADHD is more acceptable in boys and girls. Girls may be frowned upon for not displaying proper “young lady” characteristics. It is recognized by several researchers that ADHD is under diagnosed in girls. Adam’s reported that a long-term study was conducted and found that girls that went unnoticed were found to have a greater chance of being diagnosed with an anxiety or depression disorder in their teenage years. Similarly to boys, girls with ADHD also have an increased chance of engaging in high-risk behaviors (2007).

### **Comorbidity of Mental Disorders**

Further research by Gaub and Carlson, evaluates ADHD symptom differences among boys and girls with ADHD. They conducted their study in 1997 and concluded that gender differences were not found in regards to “impulsiveness, academic performance, social functioning, fine motor control, or family factors (e.g., parental education level or parental depression).” However, in the same study it was found that girls were “more impaired in their intelligence, less hyperactive, and less likely to demonstrate other externalizing symptoms (i.e., aggression, defiance, and conduct problems).” Five years later, a meta-analysis was conducted in the *Journal of Attention Disorders*. Again it was found that girls showed lower levels of hyperactivity, inattentive, impulsivity, aggression, and delinquency. It was also in agreement with Gaub and Carlson in that it found that girls suffer more intellectual impairments (2002). Like most of the research found, Gershon went on to find that females exhibited more internalizing symptoms such as depression and anxiety (2002).

The Wechsler Intelligence Scale for Children – Revised (WISC-R) and Wide Range Achievement Test (WRAT) was used to compare the cognitive functioning of hyperactive boys and girls (Ackerman, 1983). All results showed that boys were significantly higher in hyperactivity than girls. Results also showed that an increase in hyperactivity led to an increase in aggressive and conduct problems. Similarly, it was found that disruptive and uncontrolled behaviors are more prevalent in ADHD boys rather than ADHD girls (Berry et al. 1985) “Researchers often cite evidence of poorer cognitive functioning in ADHD girls, and more severe behavior problems in ADHD boys, (Levy and Hay, 2001).

In contrast, studies were done using the Personality Inventory for Children to measure personality and emotional problems among ADHD males and females. It was found that boys and girls with an ADHD diagnosis were very similar using this inventory (Befera and Barkley, 1985). Similarly, the Child Behavior Checklist was used to rate aggression and found limited differences in ADHD boys and girls and instead found that they were more similar (Breen, 1989). The Child Behavior Checklist was used again in the Journal of Abnormal Child Psychology and found “no statistically reliable sex differences in behavioral problems (Horn et al.. 1989). The reason for these findings could be due to different strategies and methods of the research. “There is a lack of consistent and conclusive evidence for sex differences in the cognitive and behavioral functioning of ADHD children. The causes of the sex differences in the prevalence of ADHD are not clear (Levy and Hay, 2001).”

In a study by Biederman in 1997, a total of 250 girls between the ages of 6-17 were compared for gender differences in the diagnosis of ADHD. 130 girls were diagnosed with ADHD and 120 were not. It was found that girls with ADHD had “elevated rates of Major

Depressive Disorder (17%), anxiety disorders (32%), and Bipolar I Disorder (10%), comparable to those found in past studies of boys by the same investigators.” Intelligence scores, reading and math scores, and the need for special education and/or tutoring services for the girls with ADHD was about the same as the boys that were investigated with ADHD. It was also found that the girls had about half the rate of Oppositional Defiant Disorder (ODD) symptoms or Conduct Disorder (CD) symptoms as opposed to the boys with ADHD in a previous study (Biederman, 1997).

Biederman conducted another study in 2002 that evaluated 280 boys and girls diagnosed with ADHD (140 boys and 140 girls). He compared them to 222 boys and girls that did not have an ADHD diagnosis (120 boys and 122 girls). ADHD girls in this study were more likely to be diagnosed with ADHD Predominately Inattentive type. This means that girls exhibited less hyperactive and impulsivity features, and instead showed more disorganized, forgetful, and lethargic features. It was also found that girls were less likely to have Major Depressive Disorder, ODD, and CD symptoms as opposed to boys with ADHD. This finding seems to disagree with the idea that girls with ADHD are more likely to be at risk for depression found in Gershon’s study.

Blachman and Hinshaw evaluated girls in a 5-week summer program. The group of girls had a mix diagnosis, some with ADHD and some without. “The girls with ADHD had fewer mutual friends and were more likely to be friendless. They also had higher levels of conflict and aggression than did comparison girls and were less able to maintain relationships over time (2002). A similar study was conducted in 2004 at a girl’s summer camp by Zalecki and Hinshaw.

Zalecki and Hinshaw evaluated girls with ADHD Inattentive Type (ADHD-PI) and ADHD Combined Type (ADHD-C), as well as girls that did not have an ADHD diagnosis. Ninety-three girls were diagnosed with ADHD-C, 47 with ADHD-PI, and 88 did not have an ADHD diagnosis (controlled females). ADHD-C showed higher levels of aggression than girls with ADHD-PI, and likewise, ADHD-PI showed higher levels of aggression to controlled females. Both groups of girls with ADHD showed “significant problems in their social relationships – specifically, higher rates in overt aggression (as seen in boys with ADHD), but also more covert relational aggression” (Zalecki & Hinshaw, 2004). This implies that girls, despite the categorical diagnosis of ADHD, whether it is PI or C, still exhibit conduct and behavioral symptoms much like boys with ADHD do.

Based on the above findings one might be quick to assume that this study contradicts the theory that girls with ADHD are Predominately Inattentive type and only exhibit internalizing symptoms. Ultimately, the majority of the findings suggest that girls with ADHD generally have lower levels of ODD and CD in comparison with boys, but higher levels of aggression and externalizing symptoms when compared to controlled girls (Barkely, 2006). However, due to gender biases, all of these findings may be skewed.

### **Gender Biases**

First, as stated previously and according to research, boys make up the majority of the sample size in these studies. Again it is shown that many teachers refer boys to clinics for ADHD treatment and not as many girls. Several sources report this same conclusion. It is noticed that teachers and parents ratings for children differ. Teachers could be underrating girl’s symptoms

because they compare the kids among a mixture of girls and boys while parents tend to compare the girls among other girls (Thorell & Rydell, 2008). The behavior rating scales used in these studies do not clarify a normative range for parents and teachers. This creates mixed results because some will rate their child based on both boys and girls and others will just concentrate on same sex comparisons (Waschbusch & King, 2009). “Because school-age boys are generally more inattentive, hyperactive, and oppositional than are school-age girls, this potential assessment bias is likely to impact girls more so than boys” (Keenan & Shaw, 1997).

As Mental Health Professionals, it is important to understand gender differences in terms of this behavior disorder. In assessing girls with ADHD, neurophysiology and genetics is also important to look at when comparing the sexes.

### **Genetics**

Several disorders in the DSM are thought to be hereditary. When Mental Health Professionals are conducting an intake assessment on a patient one of the questions that is often asked is whether or not there is a history of mental illness in the family. It is believed that this helps Clinicians further understand the dynamics of the patient’s behavior. Certain disorders such as, Bipolar and Depression are said to be genetic, so it would not be off base to assume that ADHD could possibly be passed on from one generation to the next.

Much of the research found needs further investigation, but it could be possible that there is a genetic factor that influences the symptoms and diagnosis of ADHD. Many disorders can be linked to a specific gene, but no single gene has been found in ADHD. However, there is evidence supporting the idea that ADHD does run in families. Studies over the past 40 years have shown supporting evidence of genetic factors being an influential factor for the symptoms of ADHD (Zametkin, Ernst, Cohen, 2001). Ironically, many of the studies conducted

showed ADHD risks were more prevalent in females than males. In an article of Psychiatric Genetics, Faraone found females were more at risk than males to acquire ADHD. “If a parent had ADHD, the risk was 6.6 times greater for sisters, and 1.5 times greater for brothers” (Faraone et al. 1992) It is also important to note that many boys that are diagnosed with ADHD show comorbidity with ODD and CD, but this commonality is not present in girls. “It is known from twin studies that genetic influences are important in the development of ADHD symptoms, (Rhee et al. 1999; Rietveld et al. 2003; Thapar et al. 2000). It is said that both genes and shared environmental influences seem to be important in the development of ODD symptoms (Burt et al. 2001) and CD symptoms” (Jacobson, Prescott & Kendler 2002; Rose et al. 2004). One can then conclude that ADHD may share the same qualities as ODD because they are comorbid of each other.

Research suggests that there may be a genetic link among boys and disruptive behavior disorders, but there is little investigation done regarding females and their genetic disposition for these disorders (Tuvblad, 2008). A study was conducted by Tuvblad, Zheng, Raine, and Baker that “investigated the genetic and environmental sources of ADHD, ODD and CD symptoms” (2008). A large group of 9-10 year old same sex and combined sex twins were used to rate ADHD, ODD, and CD symptoms. Face-to-Face interviews were conducted with the parents to rate the symptoms.

It was found that ADHD symptoms were “highly heritable, with 61% of the phenotypic variance being explained by genetic factors” (Tuvblad, 2008). On the other hand, there did not seem to be any indicated sex differences in the genetic effects of ADHD. (Tuvblad, 2008). Ultimately, the study conducted provides evidence that ADHD, ODD, and CD have inherited qualities, but no significance among the genders.

**Further Research**

Based on research, it appears that ADHD is more prevalent in boys, but this could be due to a number of factors. Gender biases, social acceptance, and symptoms seem to be among the top reasons for females not being recognized and diagnosed. There is a lot of research about ADHD, but there is a clear deficit in education and treatment on females and the disorder. There has been a lot of research conducted that focuses on gender differences, however there is still a lack of female input because sample sizes of the girls in the study are significantly smaller than the boys. This could be because females present with different symptoms and as stated previously, they often go unnoticed. “Clinicians have little scientific guidance about how to proceed in the many instances when a girl with hyperactivity is referred. Furthermore, the opportunity of studying the sex differences which could help to understand the causes has been neglected. (Sandberg, 1996, p. 329)

Over the years more research on hyperactivity and other behavior disorders has been conducted and in this research there has been more focus on females compared to males. It would be beneficial for Mental Health Professionals to start increasing their awareness about what the disorder looks like among girls so that treatment can be more affective. The girls that present with the disorder have just as many risks as boys for impairment and comorbidity of future disorders (Staller & Faraone, 2006). Most of the studies found in this research used boy and girl participants but it was noticed that the number of boys outweighed the girls by about 100 in all studies. It is suggested by Thorell and Rydell that studies should be conducted comparing ADHD girls and comparison girls rather than comparing between the different genders (2008).

So much of the present research focuses on the same main points and does not lead to any concrete explanations. It is apparent that girls are diagnosed less than boys, but the reason

behind this is unclear. Is it that girls are simply overlooked or are social biases such an influence that it greatly effects the primary diagnosis of these young girls thus effecting their need for treatment? This reinforces the fact that further research needs to be done to focus primarily on females with ADHD. It is the attempt of this research study to evaluate the symptoms and primary diagnosis of all girls ranging from 17 years old and younger admitted into a mental health clinic in the year 2009. Symptoms will be observed and compared with ADHD criteria.

## **Method**

### **Participants**

This study involved all admitted 2009 female patients under the age of 17. The mental health facility was strictly designated to children and youth which made it ideal for this study because ADHD is primarily diagnosed during the early years of life. During this year, a total of 214 boys and 154 girls were admitted. The study works primarily with the 154 girls that were admitted but also includes 53 boys of the same age range admitted in 2009 who had a Primary Diagnosis of ADHD. These numbers can be broken down into age and ethnicity. A total of 61 children were admitted between the ages of 5-8. 45 of these children were boys and 16 were girls. Five boys and 1 girl were admitted under the age of five. Twenty-five children were admitted at 9 years of age: 16 boys and 9 girls. Fifty-three admits between the ages of 10-11 years old: 38 boys and 15 girls. At ages 12-14, there were 78 admits in 2009 with 35 males and 43 females. Lastly, between the ages of 15-17, 135 were admitted with 70 boys and 65 girls. This supports previous evidence that boys are more commonly referred for outpatient care. However, as age increases, so does the number of females admitted. Again this supports previous research that females go unnoticed until early adolescents and teenage years.

According to records, in 2009, 129 admits were White, 96 were African-American, 81 were Puerto Rican, and 62 were a mixture of unknown or unspecified origin. Out of the 53 boys with the disorder, 20 were African-American, 17 were Puerto Rican, 10 were White, and 6 did not specify an ethnicity. It was reported that for girls with the disorder, 5 were Puerto Rican, 1 was White, 1 Was African-American, and 1 was not specified.

At the time of admittance, the girls ages ranged from 6-16 and boys ranged from 6-17. It is important to mention that some of the ages may be off depending on the date the patient was admitted. For instance a girl admitted on January 17<sup>th</sup>, 2009 may be born on September 24<sup>th</sup> 2000 and therefore would be 8 years old. For the purpose of this study the ages were calculated by subtracting the admitted year from the birth year regardless of the exact date. Therefore, some patients may have been 17 at the time of admission and turned 18 during treatment. Since the amount of girls diagnosed with ADHD is much less the age breakdown is simple: Two 6 year olds, two 9 year olds, two 11 year olds, one 13 year old, and one 16 year old. For boys the range is: One 5 year old, two 6 year olds, eight 7 year olds, seven 8 year olds, four 9 year olds, seven 10 year olds, five 11 year olds, three 12 year olds, five 14 year olds, five 15 year olds, 2 sixteen year olds, and four 17 year olds.

### **Materials and Procedure**

An archival study was done to evaluate the accuracy of female diagnosis. A total of 103 admitted females of various diagnoses were assessed. Some charts could not be pulled because they were being used by Clinicians assigned to that particular patient. However, the total number

of females diagnosed with ADHD could still be calculated because a printout was obtained that showed the 2009 admits. The printout illustrated the patient's sex, date of birth, ethnicity, and primary diagnosis. None of the names were given on the printout. A number was assigned to each patient to ensure confidentiality.

Based on the printout, all girls were highlighted and those that did not have a primary diagnosis of ADHD were further investigated. All females that were diagnosed with the disorder were added and categorized based on ADHD type. Since the main focus of this research is females, males were only calculated who had ADHD. In order to keep the focus on girls, males who did not have a primary diagnosis of ADHD were not evaluated.

The Primary diagnosis of the females was compared with the symptoms marked by parents or caretakers as well as Doctors, Nurse Practitioners, and Therapists. Patients that displayed ADHD symptom were noted and tallied. The following data was placed in a database: gender, age, ethnicity, symptoms, and the primary diagnosis given by the Doctor, Nurse Practitioner, and Therapist. It was also recorded when a parent or caretaker checked off ADHD symptoms on an intake sheet that was in the chart.

According to records, some of the primary diagnosis given by Therapists differed from the primary diagnosis given by the Doctor or Nurse Practitioner. These instances were further evaluated and marked during the research. In this case, the printout served as the final diagnosis for these patients. The diagnosis given on the printout always matched that which was given by the Therapist. It was also noted when there was a past diagnosis of ADHD or a rule out of ADHD by any of the Mental Health Professionals.

Once all of the information was collected then comparisons could start being calculated. An Excel Spreadsheet was used to organize the data. This allowed the research to be

broken down into several groups. From the information one could see clearly what were the popular diagnoses among females admitted into the clinic and what disorders most often showed ADHD symptoms. Graphs were made to clearly assess specific areas.

Percentages were compared between boys and girls diagnosed with ADHD. Furthermore, it was calculated what percentage of boys and girls were diagnosed with what type of ADHD. Girls were then broken down to find any inconsistencies among their primary diagnosis. Graphs were constructed to show those that had a symptom pattern that was congruent with ADHD. Further investigations were tabulated to find any correlation between age, ethnicity, and diagnosis.

It is the attempt of this research method to provide additional information regarding the lack of diagnosis or misdiagnosis of females who may have ADHD. Originally the hypothesis was that boys are diagnosed with the disorder more frequently and girls have symptoms of ADHD but are diagnosed differently. By comparing the symptoms of the female patients to their primary diagnosis one can begin to evaluate the accuracy of their given diagnosis.

### **Results**

Results were tabulated into a Microsoft Excel Spreadsheet. All females were recorded as well as all males that had a primary diagnosis of ADHD. First the gender ratio for the disorder was noted as well as the breakdown of how many were diagnosed with which type of ADHD: ADHD-PI (Predominantly Inattentive), ADHD-C (Combined Type), ADHD-PH (Predominantly Hyperactive-Impulsive), and ADHD NOS (Not Otherwise Specified).

Second, all females were evaluated based on their age, ethnicity, primary diagnosis, symptoms for ADHD, and their previous diagnosis or differential diagnosis given by either the Psychiatrist or Nurse Practitioner as opposed to the Therapists diagnosis. If a female displayed ADHD symptoms but held a different primary diagnosis it was noted by the researcher and later

evaluated. Third, six of the more prevalent diagnosis given to females was evaluated more closely. Percentages of those that did have ADHD symptoms were compared with percentages of those who did not. Findings suggest that age of onset definitely plays a part when considering diagnosis among these females. Thus, the last area that was identified was the age of ADHD symptoms that appeared most frequently among the two more popular diagnoses in girls during this year.

The following pages consist of the complete list of girls that were used for the purpose of this research. All 103 girls are listed with their age, ethnicity, and primary diagnosis. The last column is marked either yes or no indicating whether or not that particular individual had ADHD characteristics. Four of the girls are marked that are already diagnosed with ADHD. Based on the printout that was received of all 2009 admitted patients, 8 girls were diagnosed with the disorder, but because some charts could not be pulled only 4 are presented.

Figure 1.1.

## 2009 Admitted Children and Youth Females

<u>Case #</u>	<u>Sex</u>	<u>Age</u>	<u>Ethnicity</u>	<u>Primary Diagnosis</u>
<b>M28539</b>	<b>Female</b>	<b>7</b>	<b>White</b>	<b>309.4 Adjustment Disorder Mixed Disturbance Emotions &amp; Conduct</b>
M29311	Female	15	White	296.3 Major Depressive Disorder Recurring Unspecified
M29112	Female	14	African – American	309.9 Adjustment Disorder Unspecified
<b>M29091</b>	<b>Female</b>	<b>14</b>	<b>African – American</b>	<b>309.9 Adjustment Disorder Unspecified</b>
<b>M29480</b>	<b>Female</b>	<b>4</b>	<b>Multi-Racial</b>	<b>309.4 Adjustment Disorder Mixed Disturbance Emotions &amp; Conduct</b>
<b>M29679</b>	<b>Female</b>	<b>16</b>	<b>White</b>	<b>300.02 Anxiety Disorder</b>
M29358	Female	17	African – American	309.0 Adjustment Disorder - Depressed Mood
<b>M29258</b>	<b>Female</b>	<b>12</b>	<b>Puerto-Rican</b>	<b>309.4 Adjustment Disorder Mixed Disturbance Emotions &amp; Conduct</b>
M48531	Female	12	Hispanic	309.0 Adjustment Disorder - Depressed Mood
M29542	Female	14	African – American	309.4 Adjustment Disorder Mixed Disturbance Emotions & Conduct
M26505	Female	17	White	311 Depressive Disorder NOS
<b>M29344</b>	<b>Female</b>	<b>12</b>	<b>African – American</b>	<b>312.9 Disruptive Behavior Disorder</b>
M28625	Female	12	Puerto-Rican	309.9 Adjustment Disorder Unspecified
M28759	Female	13	Hispanic	309.0 Adjustment Disorder - Depressed Mood
M40926	Female	17	Puerto-Rican	311 Depressive Disorder NOS
M41697	Female	17	Puerto-Rican	296.90 Mood Disorder NOS
<b>M28978</b>	<b>Female</b>	<b>17</b>	<b>Puerto-Rican</b>	<b>296.90 Mood Disorder NOS</b>
<b>M25984</b>	<b>Female</b>	<b>15</b>	<b>White</b>	<b>296.80 Bipolar Disorder – NOS</b>
<b>M29580</b>	<b>Female</b>	<b>15</b>	<b>White</b>	<b>296.80 Bipolar Disorder – NOS</b>
<b>M29281</b>	<b>Female</b>	<b>12</b>	<b>White</b>	<b>309.3 Adjustment Disorder Disturbance of Conduct</b>
<b>M29083</b>	<b>Female</b>	<b>16</b>	<b>African – American</b>	<b>309.4 Adjustment Disorder Mixed Disturbance Emotions &amp; Conduct</b>
M23684	Female	14	White	296.90 Mood Disorder NOS
<b>M29072</b>	<b>Female</b>	<b>11</b>	<b>African – American</b>	<b>309.9 Adjustment Disorder Unspecified</b>
M28864	Female	12	White	312.9 Disruptive Behavior Disorder
M24241	Female	13	Puerto-Rican	296.90 Mood Disorder NOS
<b>M26831</b>	<b>Female</b>	<b>12</b>	<b>Multi-Racial/Hispanic</b>	<b>312.9 Disruptive Behavior Disorder</b>
M26228	Female	17	African – American	296.90 Mood Disorder NOS
M29118	Female	15	White	309.4 Adjustment Disorder Mixed Disturbance Emotions & Conduct
M29332	Female	15	White	300.00 Anxiety Disorder NOS
M29767	Female	15	Puerto-Rican	296.00 Bipolar I Disorder
M29210	Female	17	White	300.02 Anxiety Disorder
M29431	Female	17	Black - Unspecified Origin	311 Depressive Disorder NOS
M29755	Female	5	White	309.9 Adjustment Disorder Unspecified
M28940	Female	16	African – American	312.9 Disruptive Behavior Disorder
M28543	Female	17	White	311 Depressive Disorder NOS
<b>M28585</b>	<b>Female</b>	<b>12</b>	<b>Hispanic/Latino</b>	<b>309.9 Adjustment Disorder Unspecified</b>
<b>M26033</b>	<b>Female</b>	<b>9</b>	<b>Black - Unspecified Origin</b>	<b>314.9 ADHD NOS</b>

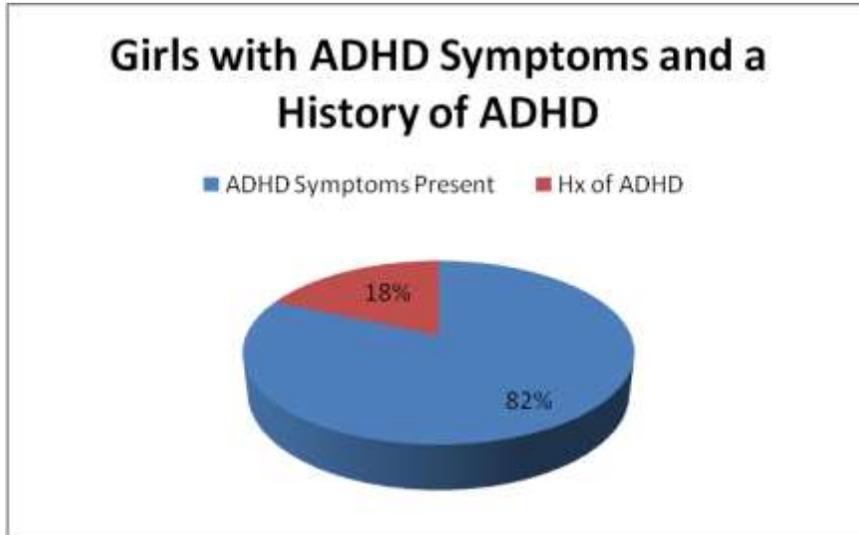
M49933	Female	17	White	296.80 Bipolar Disorder – NOS
M28488	Female	13	White	309.9 Adjustment Disorder Unspecified
M28875	Female	17	African – American	296.80 Bipolar Disorder – NOS
<b>M29287</b>	<b>Female</b>	<b>9</b>	<b>Puerto-Rican</b>	<b>314.01 ADHD - Combined Type</b>
M29693	Female	16	Unknown	296.23 Major Depressive Disorder Single Episode
M29087	Female	16	White	309.28 Adjustment Disorder w/ Mixed Emotional
<b>M29686</b>	<b>Female</b>	<b>5</b>	<b>African – American</b>	<b>296.90 Mood Disorder NOS</b>
<b>M27386</b>	<b>Female</b>	<b>16</b>	<b>Multi-Racial</b>	<b>311 Depressive Disorder NOS</b>
<b>M22293</b>	<b>Female</b>	<b>10</b>	<b>Black - Unspecified Origin</b>	<b>309.4 Adjustment Disorder Mixed Disturbance Emotions &amp; Conduct</b>
M28986	Female	15	African – American	296.44 Bipolar I Disorder Manic w. Psychotic Features
M28894	Female	17	White	311 Depressive Disorder NOS
<b>M22841</b>	<b>Female</b>	<b>17</b>	<b>Puerto-Rican</b>	<b>309.3 Adjustment Disorder Disturbance of Conduct</b>
M28810	Female	16	White	311 Depressive Disorder NOS
<b>M29200</b>	<b>Female</b>	<b>8</b>	<b>Puerto-Rican</b>	<b>309.4 Adjustment Disorder Mixed Disturbance Emotions &amp; Conduct</b>
<b>M29235</b>	<b>Female</b>	<b>9</b>	<b>Puerto-Rican</b>	<b>309.4 Adjustment Disorder Mixed Disturbance Emotions &amp; Conduct</b>
<b>M29854</b>	<b>Female</b>	<b>8</b>	<b>White</b>	<b>309.9 Adjustment Disorder Unspecified</b>
M29387	Female	15	Puerto-Rican	311 Depressive Disorder NOS
<b>M28750</b>	<b>Female</b>	<b>13</b>	<b>Black - Unspecified Origin</b>	<b>296.90 Mood Disorder NOS</b>
<b>M24054</b>	<b>Female</b>	<b>9</b>	<b>White</b>	<b>312.9 Disruptive Behavior Disorder</b>
<b>M29181</b>	<b>Female</b>	<b>17</b>	<b>White</b>	<b>300.00 Anxiety Disorder NOS</b>
<b>M22644</b>	<b>Female</b>	<b>16</b>	<b>Black - Unspecified Origin</b>	<b>312.9 Disruptive Behavior Disorder</b>
M28489	Female	16	Unknown	311 Depressive Disorder NOS
<b>M26510</b>	<b>Female</b>	<b>12</b>	<b>Unknown</b>	<b>312.9 Disruptive Behavior Disorder</b>
<b>M28091</b>	<b>Female</b>	<b>7</b>	<b>Puerto-Rican</b>	<b>313.81 Oppositional Defiant Disorder</b>
M29566	Female	11	Puerto-Rican	309.28 Adjustment Disorder w/ Mixed Anxiety and Depressed Mood
M29760	Female	16	White	296.55 Bipolar I Disorder
<b>M29005</b>	<b>Female</b>	<b>8</b>	<b>Hispanic</b>	<b>309.4 Adjustment Disorder Mixed Disturbance Emotions &amp; Conduct</b>
M27389	Female	17	White	296.7 Bipolar Disorder
M29312	Female	17	White	296.32 Major Depressive Disorder
M21812	Female	16	White	296.90 Mood Disorder NOS
<b>M28524</b>	<b>Female</b>	<b>15</b>	<b>Puerto-Rican</b>	<b>309.28 Adjustment Disorder w/ Mixed Anxiety and Depressed Mood</b>
<b>M28832</b>	<b>Female</b>	<b>11</b>	<b>Puerto-Rican</b>	<b>314.9 ADHD NOS</b>
M22317	Female	16	African – American	296.24 Major Depressive Disorder
M29134	Female	16	White	300.00 Anxiety Disorder NOS
M28548	Female	17	White	296.20 Major Depressive Disorder
M28736	Female	15	White	296.90 Mood Disorder NOS
M28836	Female	16	White	296.90 Mood Disorder NOS
<b>M28916</b>	<b>Female</b>	<b>16</b>	<b>White</b>	<b>311 Depressive Disorder NOS</b>
M29560	Female	13	Unknown	311 Depressive Disorder NOS
M25295	Female	16	Hispanic	309.9 Adjustment Disorder Unspecified
M29669	Female	16	Puerto-Rican	311 Depressive Disorder NOS
M29286	Female	17	Black - Unspecified Origin	309.0 Adjustment Disorder - Depressed Mood
M29168	Female	12	White	300.00 Anxiety Disorder NOS

<b>M29206</b>	<b>Female</b>	<b>15</b>	<b>African – American</b>	<b>309.4 Adjustment Disorder Mixed Disturbance Emotions &amp; Conduct</b>
M28808	Female	15	Hispanic	296.23 Major Depressive Disorder Single Episode
M29008	Female	17	Puerto-Rican	296.24 Major Depressive Disorder
M29153	Female	16	Puerto-Rican	309.4 Adjustment Disorder Mixed Disturbance Emotions & Conduct
M29484	Female	11	African – American	309.3 Adjustment Disorder Disturbance of Conduct
M29153	Female	16	Puerto-Rican	309.4 Adjustment Disorder Mixed Disturbance Emotions & Conduct
<b>M29335</b>	<b>Female</b>	<b>10</b>	<b>Puerto-Rican</b>	<b>296.90 Mood Disorder NOS</b>
M28990	Female	12	Unknown	309.4 Adjustment Disorder Mixed Disturbance Emotions & Conduct
M23629	Female	12	African – American	309.9 Adjustment Disorder Unspecified
M28780	Female	15	Hispanic	312.9 Disruptive Behavior Disorder
M28973	Female	15	Puerto-Rican	309.0 Adjustment Disorder - Depressed Mood
M29148	Female	13	White	309.0 Adjustment Disorder - Depressed Mood
<b>M28587</b>	<b>Female</b>	<b>12</b>	<b>Puerto-Rican</b>	<b>309.28 Adjustment Disorder w/ Mixed Anxiety and Depressed Mood</b>
M25446	Female	15	Puerto-Rican	309.81 Post-Traumatic Stress Disorder
<b>M21139</b>	<b>Female</b>	<b>13</b>	<b>Puerto-Rican</b>	<b>314.01 ADHD - Combined Type</b>
<b>M25420</b>	<b>Female</b>	<b>16</b>	<b>African – American</b>	<b>312.9 Disruptive Behavior Disorder</b>
<b>M29439</b>	<b>Female</b>	<b>11</b>	<b>Multi-Racial</b>	<b>309.4 Adjustment Disorder Mixed Disturbance Emotions &amp; Conduct</b>
M24874	Female	17	White	311 Depressive Disorder NOS
M28652	Female	9	African – American	309.9 Adjustment Disorder Unspecified
M28545	Female	17	African – American	298.9 Psychotic Disorder NOS
M29033	Female	16	Black - Unspecified Origin	309.9 Adjustment Disorder Unspecified
M45075	Female	17	Black - Unspecified Origin	296.7 Bipolar Disorder
<b>M47417</b>	<b>Female</b>	<b>16</b>	<b>White</b>	<b>309.28 Adjustment Disorder w/ Mixed Anxiety and Depressed Mood</b>

Note. Case numbers are given to protect the identities of the patients. All female participants are listed as well as their age, ethnicity, and primary diagnosis. Girls are then highlighted based on whether or not they met criteria for ADHD based on the notes and evaluations given in the chart by parents, Therapists, and other Mental Health Professionals. Their Primary Diagnosis is listed in column 5 and in column 6 they are marked yes or no for the presence of ADHD symptoms. The girls highlighted in light pink are given a Primary Diagnosis of ADHD.

Figure 1.2.

Girls with ADHD Symptoms and History of Attention Deficit Hyperactivity Disorder

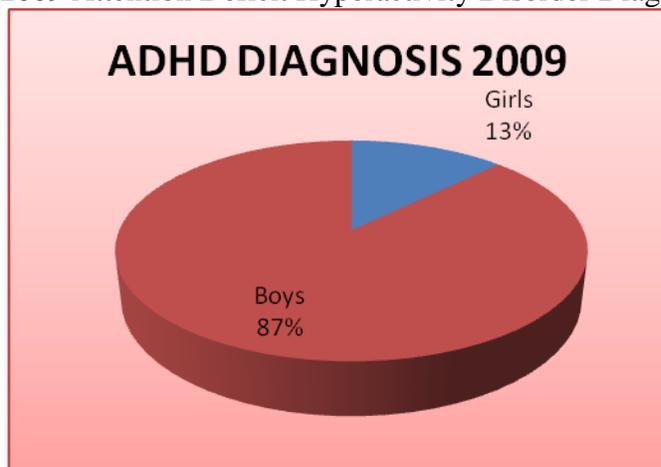


Note. Hx = There is a past diagnosis of Attention Deficit Hyperactivity Disorder (ADHD) in these patients. It is shown that 82% of the girls had ADHD symptoms but were given an alternate diagnosis and 18% of the same girls had a past history of ADHD

Based on the evidence from the printout, which is attached in Appendices A, it is shown that 8 of the admitted females had a primary diagnosis of ADHD. In this same year, 229 males were admitted and 53 of them had a primary diagnosis of ADHD.

Figure 1.3.

## 2009 Attention Deficit Hyperactivity Disorder Diagnosis of Boys and Girls

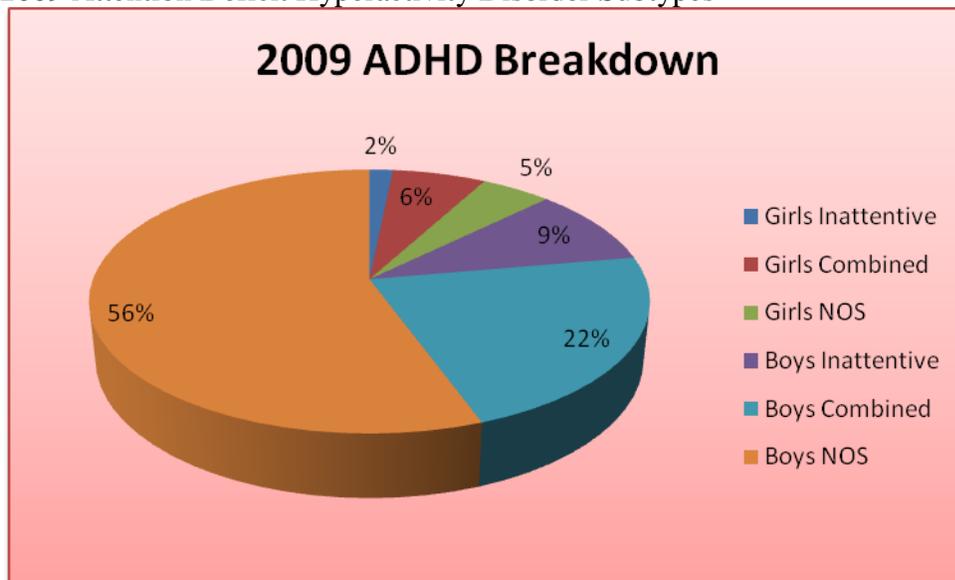


Note. Figure 1.3 shows a pie chart illustrating the percentage of males and females with a primary diagnosis of ADHD. It is apparent that at this given facility 13% of females and 87% of males were diagnosed with ADHD in 2009.

A further investigation added up all of the types of ADHD that were given to the individuals who were diagnosed. In both boys and girls it was found that clinicians used a diagnosis of either Combined-Type, Inattentive-Type, or Not Otherwise Specified. None of these patients were given a primary diagnosis of ADHD Predominantly Hyperactive-Impulsive Type.

Figure 1.4.

## 2009 Attention Deficit Hyperactivity Disorder Subtypes

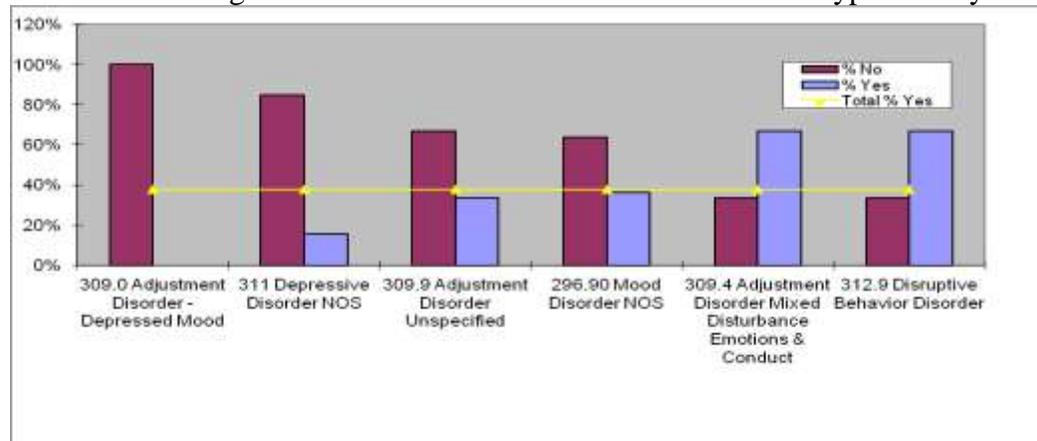


Note. Figure 1.4 shows a pie chart giving the exact percentages of male and females who were given which ADHD Subtype. Out of the eight girls, 4 were diagnosed with ADHD-C, 3 with ADHD NOS, and 1 with ADHD-PI. In the research it was observed that out of 55 boys, 35 were diagnosed ADHD NOS, 14 with ADHD-C, and 6 with ADHD-PI. Thus, in both cases ADHD-PI is the least to be diagnosed among the three types.

Next the results were reviewed and it was noticed that six disorders were most common among the girls: Adjustment Disorder with Depressed Mood, Adjustment Disorder with Mixed Disturbance of Emotions and Conduct, Adjustment Disorder Unspecified, Depressive Disorder NOS, Mood Disorder NOS, and Disruptive Behavior Disorder. These disorders were evaluated separately. Percentages of females that were diagnosed with one of these disorders were calculated and simultaneously calculated for those that presented with ADHD symptoms.

Figure 1.5.

2009 Female Diagnosis and Those That Had Attention Deficit Hyperactivity Disorder Symptoms

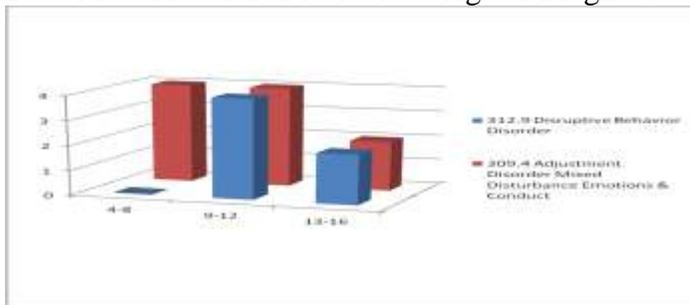


Note. The graph in figure 1.5 shows the percentage of those diagnosed with the given disorder in purple. The percentage of those that have ADHD symptoms is shown in blue. Those with an Adjustment Disorder with Depressed Mood did not have any symptoms of ADHD present. From the results it is illustrated that 15% of females diagnosed with a Depressive Disorder had symptoms for ADHD. Those diagnosed with and Adjustment Disorder Unspecified had 33% of the females showing criteria for ADHD. 36% of females that were diagnosed with a Mood Disorder had symptoms of ADHD. Lastly, 67% of females that were either diagnosed with Adjustment Disorder with Mixed Disturbance of Emotions and Conduct and Disruptive Behavior Disorder displayed symptoms of ADHD. The yellow line that runs through the graph represents the mean number of girls that have ADHD criteria but are diagnosed differently. Therefore it can be seen that 38% of girls represent the mean. In this instance it may be assumed that 38% of girls could possibly have been diagnosed with Attention-Deficit Hyperactivity Disorder.

During the course of the research the question was raised whether age could be a factor in ADHD symptoms being present. Based on the research it is understood that children are typically diagnosed with ADHD as early as 5 years old. In particular, research says that girls who are not diagnosed early in life are usually diagnosed with a comorbid disorder as they reach their adolescents. As shown in Figure 1.5, girls are often diagnosed with Depressive, Anxiety, and Adjustment Disorders that have mood disturbance features. For that reason the two disorders that showed the highest percentages of girls with ADHD symptoms were evaluated based on age. It could be hypothesized that because ADHD is said to be diagnosed predominately in younger children that the age range for girls that presented with an ADHD symptom pattern would mostly be between 5-7 years old. It would also show a decrease in ADHD symptoms as the girls got older.. The graph below shows evidence that supports this hypothesis.

Figure 1.6.

2009 Most Prevalent Disorders & Age of Diagnosis

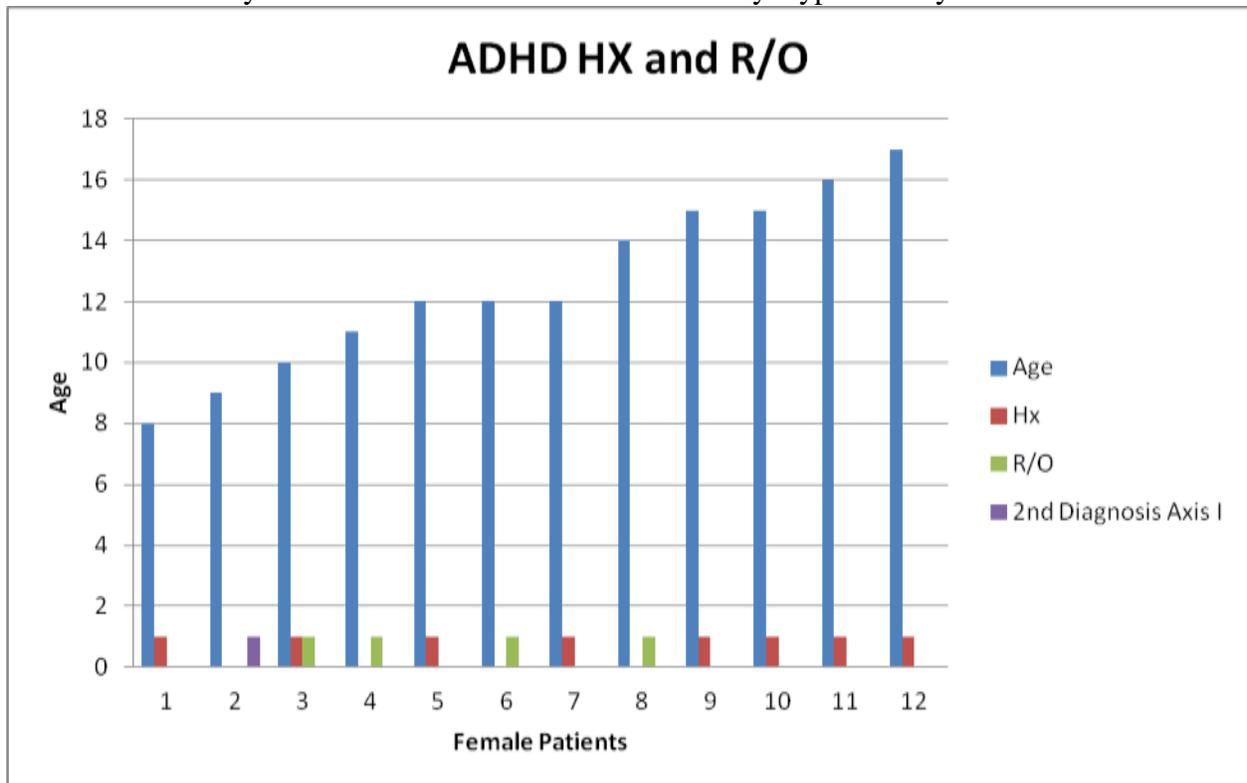


Note. The graph in Figure 1.6 shows the two disorders that had the highest percentage of females with symptoms of ADHD. For Adjustment Disorder with Mixed Disturbance of Emotions and Conduct 4 girls were diagnosed between the ages of 4-8 and 4 girls were diagnosed between the ages of 9-12. Between the ages of 13-16, 2 girls were given the diagnosis. Disruptive Behavior Disorder shows no girls diagnosed between the ages of 4-8, 5 girls diagnosed between 9-12, and 2 girls diagnosed between 13-16.

Next the data was analyzed based on whether or not the individual had a past history of ADHD or a rule out of ADHD. It was also noticed when the Nurse Practitioner made the primary diagnosis ADHD which differed from the Therapist’s diagnosis.

Figure 1.7.

Girls with a History of and a Rule Out of Attention Deficity Hyperactivity Disorder



Note. Hx = Past diagnosis of ADHD; R/O = Rule Out of the diagnosis of ADHD is considered by the Therapist. The graph in figure 1.7 represents the number of female patients diagnosed with either a history of ADHD, a rule out of the disorder or both. It also shows one patient which was given a second diagnosis of ADHD. Further illustration of this data is presented below.

Figure 1.8.

Primary Diagnosis with History of and a Rule Out of Attention Deficit Hyperactivity Disorder

	<u>Primary Diagnosis</u>	<u>Nurse Practioner Dx</u>	<u>Therapist Dx</u>
Age			
8	309.4 Adjustment Disorder Mixed Disturbance Emotions & Conduct		hx ADHD NOS
9	309.4 Adjustment Disorder Mixed Disturbance Emotions & Conduct	ADHD	2nd Axis I Diagnosis ADHD
10	309.4 Adjustment Disorder Mixed Disturbance Emotions & Conduct		R/O ADHD - 6 y/o hx ADHD
11	309.9 Adjustment Disorder Unspecified	ADHD NOS	R/O ADHD
12	309.3 Adjustment Disorder Disturbance of Conduct		hx ADHD
12	312.9 Disruptive Behavior Disorder	ADHD	R/O ADHD
12	312.9 Disruptive Behavior Disorder		hx ADHD
14	309.9 Adjustment Disorder Unspecified		R/O ADHD
15	296.80 Bipolar Disorder – NOS		hx 314.01 ADHD - Combined Type
15	296.80 Bipolar Disorder – NOS		hx ADHD
16	311 Depressive Disorder NOS		hx ADHD Inattentive Type 8 y/o
17	300.00 Anxiety Disorder NOS		hx ADHD

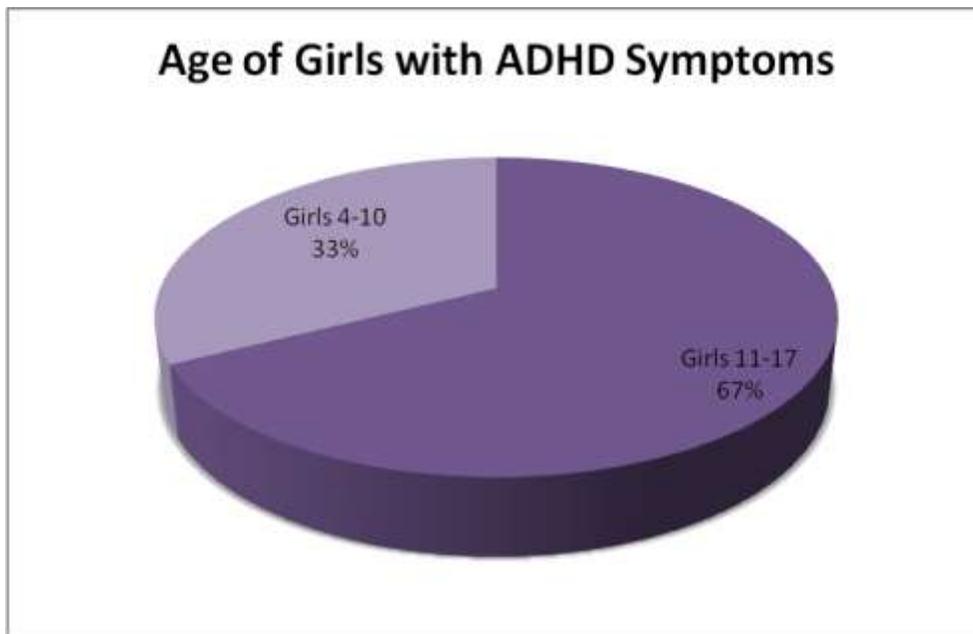
Note. The above data shows all females with a given diagnosis by the Therapist. The Nurse Practitioner disagreed on 3 occasions and stated their Primary Diagnosis as ADHD. The above data also shows that 8:12 of these girls had a past ADHD diagnosis and 4:12 had a rule out of ADHD. The first girl in the data was listed as having ADHD as her second diagnosis on Axis I.

When reviewing the results a lot of notes were taken down on patients that seemed to really identify with an ADHD diagnosis. For all of the females listed that had symptoms of ADHD and a rule out of ADHD, they were noted for having very strong symptoms that identified with the criterion for ADHD in the DSM-IV-TR. It was also noticed that a girl had a past diagnosis of Disruptive Behavior Disorder at 9 years old and had all of the signs for ADHD. She then was diagnosed in 2009 at the age of 15 with an Adjustment Disorder with Mixed Anxiety and Depressed Mood. This pattern appeared again in another girl at the age of 4. She also had significant amount of criterion for ADHD and was diagnosed with a Disruptive Disorder. When she was evaluated at 9 her diagnosis changed and still was not ADHD.

It was also noticed that many of the females that were marked yes for ADHD symptoms were in their adolescent or teenage years. This leads one to believe that after a certain age, ADHD is not considered for a primary diagnosis. Understanding this makes sense because the DSM-IV-TR places a stronger emphasis on younger age children when considering a diagnosis for ADHD. Thus, it can be assumed that perhaps the primary diagnosis given by the clinician is accurate despite the presents of symptoms for ADHD. It would make sense for a female to be diagnosed with a Depressive Disorder, Anxiety Disorder, etc when it was found in the research that these are comorbid of females who have inattentive, hyperactive symptoms in their early childhood years.

Figure 1.9.

## Age of Females with Attention Deficit Hyperactivity Disorder Symptoms



Note. The above pie chart shows the ages of girls that presented with an ADHD symptom pattern. Ages 11-17 are thought to be the start of adolescents into the teenage years. It is apparent that 67% of these girls had a different diagnosis and this could be due largely because their age range is outside the norm for diagnosing a person with ADHD.

Ultimately, it is hard to assess whether the diagnosis given to the girls used in this study is accurate or not. There are several other factors that contribute to making clinical conclusions on patients. Mental Disorders are unique in that there is almost always no concrete answer. A lot of extenuating circumstances go into making a diagnosis. In this research, the main focus was to outline the number of females diagnosed versus boys and then take a look at whether or not it was possible for a girl to be diagnosed with ADHD based on their symptoms as outlined in their chart.

## Discussion

The females used for the purpose of this research were 17 years of age and younger. All of them were admitted patients in a Mental Health Clinic in the year 2009. During this year, boys that were diagnosed with ADHD were also evaluated to answer the main research question: Are boys diagnosed with Attention Deficit Hyperactivity Disorder more frequently than girls? Furthermore, since it was found that boys are diagnosed more with the disorder than girls, then how come? The original thought was that girls are either misdiagnosed or not diagnosed at all. Since all of these females have been admitted for treatment they must be given a diagnosis, so it was not possible in this research to assess whether girls are going unnoticed or not. More research needs to be done in that area. The results indicate that girls are perhaps misdiagnosed.

Prior to conducting this research it was not known that the Doctor at the Clinic “does not believe” in ADHD. That is why the results do not reflect any outcomes based on the Doctors diagnosis. There was one patient that had a different diagnosis given to her by the Doctor than the Therapist. The Therapist had said the 15 year old girl had Bipolar Disorder. Upon reviewing the chart it was found that this girl had all the symptoms for ADHD. It was also noted in the chart that she had a past diagnosis of ADHD. The Doctor disagreed with the Bipolar diagnosis and instead diagnosed her with Disruptive Behavior Disorder. The fact that the Doctor in this children and youth setting does not believe in ADHD, which is the most diagnosed disorder among children today, makes it hard to obtain true nonbiased results. This also creates a tremendous barrier to treatment for individuals admitted and for the other Mental Health Professionals that work with the children.

The contents in *Figure A* show all females that present with ADHD symptoms but have a different diagnosis. This portion of the research assumes that there are no gray areas. In other words, if a person were to only base their assessment of an individual on symptoms alone and not other circumstances that can influence a person's mood stability, then a simple yes or no is marked for the presents of ADHD. However, it is important to keep in mind that other disorders do have ADHD like symptoms as well. Irritability and difficulty concentrating can be symptoms of Depression, Anxiety, and Adjustment Disorders. When a girl was noticed to have ADHD symptoms based on the intake sheet that was filled out by the parent or guardian then she was further evaluated based on the Clinicians assessment before being labeled as "Yes" for possibly being misdiagnosed. This can account help create some more validity to the research, but cannot ensure complete validity.

Prior to evaluating any of the diagnosis given to the patients at this setting, it was noticed that boys are referred 40% more than girls. Along with that it was found that 25% of the boys admitted in 2009 were diagnosed with ADHD. In contrast, it was also noticed that only 5% of the girls admitted were diagnosed with the disorder. The pie charts used to determine the exact percentage of boys and girls diagnosed with ADHD in 2009 strongly agree with the research examined in the review of literature. Not only does it indicate that boys outnumbered girls by 87%, it also supports the theory that boys may be over diagnosed. Previous studies found that boys were 5-9 times more likely to be referred for ADHD treatment (Barkley, 2006). In this case, the numbers show that the diagnosis rate for ADHD is 5 times higher in boys than in girls.

The DSM-IV-TR further supports this showing that boys are treated for ADHD between 9:1 and 2:1 depending on the clinical setting. On average, boys show a referral rate of 6:1 over girls (Ross & Ross, 1982). All of the ratios found in the research shows that males outnumber the girls when diagnosing and treating ADHD.

In addition, it is shown how many girls and boys were diagnosed with what category of ADHD. This information does not support the research in that it does not show any admitted patient as having ADHD Predominately Hyperactive-Impulsive Type. Therefore the findings for this study were surprising since when most think of ADHD they think of the hyperactive child. Plus, much of the research that was done, including the history of ADHD, focuses on the hyper and impulsive child with a hyperkinetic disorder.

From the same data it is shown that only 1 girl and 6 boys were diagnosed as having ADHD Predominately Inattentive Type. Again, this contradicts some of the research and theories that girls have more inattentive symptoms and thus go unnoticed. Earlier research suggests that girls with the disorder are “spacey, unfocused, or inattentive” (Adams, 2007). It was also found that girls are 2 times more likely to be diagnosed with ADHD Inattentive type (Staller & Faraone, 2006). The fact that only one girl was diagnosed as inattentive type could partly be due to the fact that it seems like in most cases the children at this facility were diagnosed as either ADHD NOS or ADHD Combined Type. It seems like these categories serve as a catch all for children with ADHD symptoms. Perhaps an even more important reason for the lack of ADHD-PI diagnosis is because girls were often given an Adjustment Disorder with Mixed Disturbance of Emotions and Conduct.

Based on previous research, it is found that girls are diagnosed with ADHD-PI (Attention-Deficit Hyperactivity Disorder Predominately Inattentive Type) more frequently than boys (Biederman, 2002). Biederman also conducted a study 5 years prior that stated girls are often diagnosed with Depressive, Anxiety, and Bipolar disorders because of their inattentive symptoms (Biederman, 1997). As a result, these young girls may not be getting diagnosed with ADHD-PI because an Adjustment Disorder with symptoms of depression and behavior problems has become the more common diagnosis among females in this Mental Health Facility.

It was found that 35 boys and 3 girls were diagnosed with ADHD NOS and 14 boys and 4 girls for ADHD Combined Type. After understanding the criteria for a person to be diagnosed with ADHD NOS it was surprising to see the numbers highest for this category. The DSM-IV-TR states that a person diagnosed with ADHD NOS must have an age of onset of 7 years old or older. Many of the boys diagnosed in this category were younger than 7 years of age. Because there were so few girls diagnosed with ADHD in 2009, it was necessary to further the research and determine if a misdiagnosis was possible.

All girls were looked at carefully, but particular attention was calculated among the top 6 mental disorders diagnosed: Adjustment Disorder with Mixed Disturbance of Emotions and Conduct, Adjustment Disorder Depressed Mood, Adjustment Disorder Unspecified, Mood Disorder NOS, Disruptive Behavior Disorder, and Depressive Disorder NOS. This supports the previously stated research that girls are often have depressive and anxiety symptoms, and therefore are often diagnosed with an alternative disorder instead of ADHD-PH. Girls often internalize their symptoms and do not exhibit as many externalizing symptoms, such as aggression and defiance, as boys do (Gaub & Carlson, 1997).

Over half of the females diagnosed with an Adjustment Disorder with Mixed Disturbance of Emotions and Conduct and Disruptive Behavior Disorder showed strong signs of ADHD. Furthermore some of these girls had a past diagnosis of ADHD or were noted by the Clinician as having a rule out of ADHD. Age can play a factor in making clinical assessments, but other than that it is unclear as to why these girls were not diagnosed with ADHD. It is shown that most of the girls in this grouping had strong symptoms of ADHD during the years that the disorder is most frequently diagnosed. It could be that this evidence is significant to studies that do not show any significant behavior differences among boys and girls with ADHD. In the Personality Inventory for Children and The Child Behavior Checklist, there were no significant behavior differences found between girls and boys. (Befera & Barkley, 1985; Breen 1989). However, this could be because of how participants rated the children.

When looking at these 6 disorders it is also shown that as girls enter into their adolescent and teenage years they are diagnosed with Depressive, Anxiety, or Mood Disorders. This supports previous research that states that there is comorbidity among girls who may have had ADHD early in life. It is shown that girls with an Adjustment Disorder with Mixed Disturbance of Emotions and Conduct as well as those with a Disruptive Behavior Disorder had high characteristics for ADHD during their earlier years. Girls diagnosed with either of these disorders tend to dip down once a girl has reached 13 years of age. If these girls show such a strong correlation to ADHD then why are they being diagnosed differently? Again it is important to remember that these findings are strictly based on reviewing notes of Clinicians. A full assessment involving face-to-face interactions with these patients would be ideal to make

a more valid conclusion that these girls are being misdiagnosed. However, the significant amount of girls being diagnosed with a Disruptive Behavior Disorder supports evidence that girls tend to be scrutinized more than boys for their behavior. Again we can see some inconsistencies on whether or not girls display different criteria to ADHD. Some scales show girls as displaying similar hyperactive and disruptive characteristics as boys, and others suggest that girls are more inattentive.

Girls who were diagnosed as having a Disruptive Behavior Disorder were mostly between the ages of 9-12. Some of the girls had a rule out for ADHD and all of them had strong characteristics of ADHD, so why were they diagnosed differently? Based on the research, one might conclude that teachers and parents (in this situation Therapists) rate girls based on their comparisons with other children, therefore they weigh a girl who may have ADHD criteria much differently than they would a boy. Their assessment might be more severe for the girl than the boy. This relates to the theory that girls are thought to be “lady like” and it is more socially acceptable for boys to have issues with conduct and oppositional behavior. Therefore, when a girl is thought to be inattentive, hyperactive, and have problems with her behavior, she is critically assessed and thus is labeled with a Disruptive Behavior Disorder when in fact there is a good chance she has ADHD. A “normative” range needs to be established when evaluating a female for ADHD (Waschbush & King, 2009). Parents and Therapists in this study may be guilty of weighing girls’ behaviors more heavily simply because they are females and the “typical” female does not externalize their emotions in an aggressive manor (Keenan & Shaw, 1997).

Some of the girls that had ADHD criteria were found to have a past diagnosis or a rule out of ADHD. 8:12 of the girls had a history of the disorder and 4:12 showed a rule out for the disorder. It is unclear why Clinicians believed it was necessary to label these girls with a rule out and not give them a full Primary Diagnosis of ADHD. In these instances, 3:4 of the rule outs showed the Nurse Practitioner as diagnosing the patient with ADHD. Nonetheless, the ultimate diagnosis that was placed in the records for all admitted patients in 2009 was given by the Therapist. It was not until further investigating was done by the researcher that a different diagnosis from another source was noticed. This creates a significant barrier to treatment. Both of the Mental Health Professionals are working together to provide therapy and medication to the child, yet they have a different primary diagnosis.

Similarly to the discussion about age in correlation with the 6 most prevalent disorders among these young girls, it was found that 33% of girls between 4-10 years old and 67% of girls between 11-17 years old had ADHD criteria. The conclusion can be drawn that girls who were above the typical age range for diagnosing ADHD were not even considered to be categorized in that disorder. Coincidentally, the disorders that are taking the place of ADHD are said to be comorbid to each other. The girls in the younger age range may have more of a chance at being misdiagnosed since some of them show that they were given rule outs of ADHD by their Therapists.

This research only begins to scratch the surface of the issue at hand. More extensive analysis needs to be done to help identify why it is that ADHD is not diagnosed as much among females. It is difficult to assume that on average 38% of the females admitted could have a diagnosis of ADHD instead of what they were given simply because they presented with symptoms consistent of the disorder. Many other factors contribute to the decision of making the primary diagnosis.

Therapists are supposed to look at the whole picture when making a diagnosis. School, family, and life changes all play a part in affecting a person's behavior.

With that being said, the reverse can be concluded for boys. Perhaps boys are diagnosed too frequently. It could be entirely possible that when a boy experiences stressful situations he handles it more vocally with higher levels of externalizing symptoms and therefore he is quick to be labeled as ADHD. Girls are thought to have more internalizing symptoms, but if Clinicians continue to diagnose them with various other disorders than they could be missing out on the proper treatment and medications. Not many girls are put on medication because she has an adjustment disorder, but the boy with ADHD cannot get his Ritalin swallowed fast enough.

Basically, it is apparent that there is a gap in the understanding how and when to diagnosis an individual with Attention Deficit Hyperactivity Disorder. Mental Health Professionals have different views on when to diagnosis and how to treat a patient with ADHD. In this case, the Doctor did not even believe in the disorder and therefore Therapists rarely referred their patients for a psychiatric evaluation to this person. All of the young people who were thought to be ADHD were sent to the Nurse Practitioner. Not only does this create an obstacle for those working in this environment, but it also works against those individuals who need care for this particular diagnosis.

Additionally, girls are so frequently overlooked that they may not be getting the proper therapeutic care that they need. It would be beneficial to this profession to further investigate this situation. ADHD is the most common diagnosed disorder among young children today. It would make sense if there was a better understanding about diagnosing the disorder. This may need to begin with the DSM-IV-TR. Perhaps it would make more sense if the field trials used actually contained more of a balance in the amount of boys used. Hopefully with the addition of the DSM-V there will be fewer accusations of gender biases among researchers. However, the DSM is not the only area that needs to include more girls in the research samples.

Many of the studies done focused on large groups of boys. Again, this could be partly because of the theme that girls are not recognized as having ADHD, but this could also be because boys are often admitted into treatment more than girls (Ross & Ross, 1982). More studies should be done that focus only on females. A lot of the information found focuses on comparing males and females. There is significant research about ADHD, but some of the resources found only acknowledge a small portion to gender. Even fewer sources chose to focus primarily on females alone.

In closing, much needs to be done to really begin to understand what is going on for young girls. It is clear that ADHD girls may express themselves differently and therefore hardly ever get recognized as having the disorder. It is up to teachers, parents/guardians, and other Mental Health Professionals to educate themselves and the patients. Attention Deficit Hyperactivity Disorder is rapid in the school systems, but do we even know why? Once it is understood by professionals, then treating girls and boys with mental disorders will become more efficient.

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