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# Social workers' knowledge and attitudes about treating children with attention deficit hyperactivity disorder

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**SOCIAL WORKERS' KNOWLEDGE AND ATTITUDES ABOUT TREATING  
CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER**

by

**ANGELAH DAWN GOMEZ**

**THESIS**

Submitted to the Graduate School

of Wayne State University,

Detroit, Michigan

in partial fulfillment of the requirements

for the degree of

**MASTER OF SOCIAL WORK**

2011

MAJOR: SOCIAL WORK

Approved by

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Advisor

Date

## DEDICATION

*This is dedicated to persons living with  
Attention Deficit Hyperactivity Disorder, their families, and loved ones.*

## ACKNOWLEDGMENT

Thank you to all of you who have played an instrumental part in helping me achieve my goals.

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Social Work Study Respondents

WSU School of Social Work

WSU SOSW Class of 2009, 2010, & 2011

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## CHAPTER 1 Literature Review

### Introduction

Attention Deficit Hyperactivity Disorder (AD/HD) is the most commonly diagnosed mental health disorder in children (American Academy of Child & Adolescent Psychiatry [AACAP], 1997; American Psychiatric Association [APA], 2000; Barkley, 1998; Furman, 2005; Ghanizadeh, Bahredar, & Moeini, 2005; Kollins, Barkley, DuPaul, 2001; Lopez, 2006; Mayes & Erkulwater, 2008; Rowland, Lesesne, & Abramowitz, 2002; Plomp, Van Engeland, & Durston, 2009; Shaffer et al., 1996; Shaywitz & Shaywitz, 1987; Sinder, Bush, & Arrowood, 2003; Whalen et al., 1989). According to Gibelman & Schervish (1997) and Knowlton (1995) social work professionals are one of the largest populations to provide mental health services to youth, as well as, adults. Social workers play a large role in the treatment of AD/HD as they provide referrals to prescribing professionals (Moses, 2008). Many of the clients diagnosed with AD/HD also receive therapeutic and, in many instances, case management assistance from social workers.

Working with parents, schools, and physicians, social workers act as the intermediaries in medication referrals, evaluations, and follow ups (Bentley & Walsh, 2001). Almost three-quarters (72%) of a survey sample of social work members from the National Association of Social Workers (NASW), reported “often or very frequently” referring clients to prescribers in a usual month (Bentley, Walsh, & Farmer, 2003). It is apparent that social workers play a significant role in the treatment of children. They often function as consultants, counselors, monitors, advocates, educators, and collaborators between parents and other professionals (Bentley & Walsh, 2006; Moses & Kirk, 2008). It is important to note, however, that despite their large role in the treatment of youths, little research has been conducted on social workers’

knowledge and attitudes about the treatment of children with AD/HD. This is important because social workers' role in children's treatment and social workers' personal attitudes can influence parents' decisions to follow through on psychosocial and/or medication treatment. In some instances, social workers' theoretical orientation and views can determine why, when, and how treatment referrals occur (Bradley, 2003). Social workers' communication styles and their behaviors with clients are often affected by their attitudes about medication treatment (Bentley, Farmer, & Phillips, 1991). This study can shed light on the issue and help to promote awareness by encouraging ethical, well-informed unbiased treatment of children with AD/HD.

Moreover, discovering where social workers obtain their knowledge and how they come to formulate their attitudes will help to develop future social work education programs and fine-tune existing ones. It is valuable that social work professionals working with youth are knowledgeable about the characteristics and treatment methods available for AD/HD. With this in mind, it is likely that this study will benefit the lives of children and their families receiving treatment for AD/HD.

## **Literature review**

### **Psychotropic treatment of youth**

Since the 1990s, the use of prescription medication for children under the age of 18 has increased dramatically (Hunkeler et al., 2005; Jensen, 2002; Moses, 2008; Olfson, Marcus, Weissman, & Jensen, 2002; Schirm, Tobi, Zito, & de Jong-van den Berg, 2001; Thomas, Conrad, Casler, & Goodman, 2006; Zito et al., 2000; Zito et al., 2003). For children ages 4 to 17, psychotropic medications are the most prescribed. Among medications for the treatment of mental health related disorders, stimulants and antidepressants are the most used (Martin, Piek, & Hay, 2006; Olfson et al., 2002; Zito et al., 2000; Zito et al., 2003; Zito et al., 2006).

According to Diller (2000), there are 5 million children under the age of 18 taking psychopharmaceuticals for mental health related disorders.

Much has changed over the past decade in mental health diagnoses and treatments, so much so that the use of antidepressants in children ages 7 to 12 rose 151 percent. In addition, the rate of antidepressant use among children under the age of 6 rose by 580 percent (Sparks & Duncan, 2004). The use of antipsychotics rose 300 percent in children under the age of 18 and the use of psychostimulants<sup>1</sup> rose 169 percent in children age 2 through 4 according to Sparks and Duncan (2004).

Nonetheless, there is little empirical evidence supporting the use of new psychopharmaceuticals in pediatric patients (American Academy of Child & Adolescent Psychiatry [AACAP], 2001; Jellinek, 2003; Jensen, Arnold, & Richters, 1999a; Walkup, 2003). Without clinical research findings to support a drug's safety and efficacy, the FDA is unable to approve the medication for on label use. Pharmaceutical research on children has been limited in the past due to ethical considerations and financial constraints. Since children are a vulnerable population, concerns regarding their overall well-being have resulted in few longitudinal studies that track the effects of prolonged use of psychotropic medications. Since many pharmaceutical companies spend significant amounts of funding on the research of adult pharmaceuticals, little funding is left to complete trials on children. Still many of the psychopharmaceutical medications are prescribed for children (Gadow, 1999; Jensen et al., 1999; Pelham, 1993). As a result, many of the psychotropic medications used for mental health related problems in children

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<sup>1</sup> - An agent that increases psychomotor activity in most patients. It improves concentration and impulse control in attention deficit hyperactivity

are prescribed via off-label use<sup>2</sup> (Breggin, 1995; National Institute of Mental Health [NIMH], 2008; Sparks & Duncan, 2004).

Medications once prescribed for adults are now regularly prescribed for children without prior testing (Diller, 2000). For instance, Gabapentin (Neurontin) and divalproex sodium (Depakote) both anticonvulsants, are now the first choice medication for children with bipolar disorder according to Diller (2008). Anti-psychotic medications such as risperidone (Risperdal) are commonly prescribed for children who have severe acting out episodes (Diller, 2000). In adults, this medication is used to prevent hallucinations or psychosis. Clonidine (Catapres), a medication to treat high blood pressure in adults, is prescribed for children to reduce aggression (Diller, 2000). Guanfacine (Tenex), a non stimulant medication also used to treat high blood pressure in adults, was commonly used as an off-label medication treatment for children with AD/HD. Guanfacine, which is now marketed as Intuniv, was approved by the United States Food and Drug Administration (FDA) in September 2010 for the treatment of AD/HD in children ages 6 to 17 years old (Peterson, 2009; Strange, 2008).

In 2007, the Food and Drug Administration made an amendment to the Pediatric Research Equity Act (PREA) and the Best Pharmaceuticals for Children Act (BPCA). The Pediatric Research Equity Act of 2007 (PREA) provides pharmaceutical companies with financial and exclusivity incentives to conduct research on already existing drugs for use in pediatric patients. It also requires pediatric assessments to be included in new drug applications (American Academy of Pediatrics [AAP], 2007). Provisions of the amendment include a \$200 million reauthorization for the NIH Pediatric Research Fund. As pharmaceutical manufacturers

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<sup>2</sup> - The practice of prescribing pharmaceuticals for an unapproved indication. Medication does not have the scientific study data

take advantage of these incentives, many of the off-label medications used in children are now undergoing clinical testing and some are gaining approval by the FDA.

The provisions have created greater transparency and dissemination of pediatric medication information (AAP, 2007). According to the American Academy of Pediatrics (2007), the amendments to PREA have made pharmaceutical companies responsible for providing annual public data on medications that have not been approved for children. This has given non-medical mental health providers as well as parents a better foundation to formulate the decisions on what the best treatment options are for children with AD/HD and other mental health related disorders.

Of all of the FDA approved medications for children, the longest in use is the psychostimulant methylphenidate for the treatment of AD/HD (Chiarello & Cole, 1987). More commonly known as Ritalin, it has been labeled by the FDA since 1961 as a suitable psychotropic medication for the treatment of AD/HD in children. Of all the pediatric psychopharmaceuticals, stimulants for the treatment of AD/HD have been studied most extensively (Mayes & Erkulwater, 2008). Regardless of the long-standing use of methylphenidate and the extent to which it has been researched, controversy and concerns have not been quelled.

The long running debate over the psychotropic treatment of youths, and more specifically the psychotropic treatment of AD/HD, is seeded in a variety of theories. Some believe that AD/HD is a moral dilemma and that it is a problem that can be reduced or eliminated by proper parenting and disciplinary actions (Breggin, 1995). Still others believe that it is a genetic or pathological disorder (Plomp et al., 2009) that can best be treated by psychotropic treatment (Greenhill, 2004). While others believe that therapy yields the best results. Furthermore, some

critics question the validity of the disorder altogether (Marshall, 2007). Lastly, others believe that many mental health disorders are fictitious diseases orchestrated by the mental health profession and pharmaceutical companies to increase revenue (Media Education Foundation, 2006).

### **Attention Deficit Hyperactivity Disorder diagnostic criteria**

The 2007 *Diagnostic and Statistical Manual of Mental Health Disorders, Fourth Edition, Text Revision* (DSM-IV-TR) states that there are three subtypes of Attention Deficit Hyperactivity Disorder (AD/HD). The three subtypes include AD/HD-Predominantly Inattentive Type; AD/HD-Predominantly Hyperactive-Impulsive Type; and AD/HD-Combined Type. Other mental health related disorders may be present with AD/HD, such as Disruptive Behavior Disorders, Mood Disorders, Anxiety Disorders, and Learning Disorders. Generally, to be diagnosed with the disorder the subtype symptoms and co-occurring disorders must be present prior to the age of seven. However, many children go undiagnosed for years. The following section will discuss the symptoms and characteristics related to each type of the disorder.

**AD/HD Predominately-Inattentive Type.** For children with AD/HD Predominately-Inattentive Type, the DSM-IV-TR (2007) states that the children may make careless mistakes in schoolwork, and that they can become easily distracted by background noise that would otherwise not distract persons of similar age. Following through on simple daily activities can be challenging for children with AD/HD according to the DSM-IV-TR (2007). Children with Inattentive Type AD/HD will generally struggle with instruction and will fail to complete schoolwork, chores, or other duties assigned to them. These children avoid organization and tasks that require sustained mental effort (DSM-IV-TR, 2007). Frequent shifts in conversation,

not listening to others, and not following rules are behavioral characteristics of AD/HD (DSM-IV-TR, 2007).

**AD/HD Predominantly-Impulsive Type.** According to the DSM-IV-TR (2007), the inability to remain seated for an extended amount of time is characteristic of children with AD/HD Predominantly Hyperactive-Impulsive Type. This behavior is described as fidgeting in their seats or finding it hard to sit still. Young children may appear as if they are “into everything” and they often dart back and forth (DSM-IV-TR, 2007). Also typical of Hyperactive-Impulsive Type is having difficulty remaining in a quiet activity, seeming as if they are constantly “on the go” or as if driven by a motor. According to DSM-TR-IV (2007), talking excessively at inappropriate times is also a frequent trait of the disorder. The DSM-IV-TR (2007) recommends caution when diagnoses are made in young children since AD/HD can mirror some normal developmental behavior.

DSM-IV-TR (2007) indicates that children with Impulsive Type-AD/HD present with behavior indicating that they are easily annoyed or impatient with others. This is evident by the inability to wait one’s turn, frequently interrupting others, or blurting out answers prior to the completion of the questions according to the DSM-IV-TR. Some behavior is seen as intrusive or disrespectful as AD/HD children violate the boundaries of others by taking objects from them or touching things that they are not supposed to touch. “Clowning around” under these circumstances is also characteristic of AD/HD (DSM-IV-TR, 2007). Children who have the Impulsive Type AD/HD generally enter into dangerous activities without the consideration of consequences. Impulsive children will often bump into others, knock things over, or grab dangerous objects such as a hot pan (DSM-IV-TR, 2007). In these instances, children with AD/HD not only endanger themselves, but they can also unintentionally harm others.



**AD/HD Combined Type.** According to the DSM-IV-TR (2007), children may present with characteristics of both Inattentive and Hyperactive-Impulsive Type. With Combined Type, however, the children must present with six or more criteria from the Hyperactive-Impulsive Type and six or more criteria from the Inattentive Type. For current diagnosis, these sets of behaviors must have occurred within the past six months (DSM-IV-TR, 2007).

**Co-occurring disorders.** Co-occurring disorders are seen in about half of the AD/HD cases involving children (DSM-IV-TR, 2007). Most children who have a co-occurring disorder also have either Combined Type or Hyperactive-Impulsive Type along with one or more additional disorders. The common co-occurring external disorders seen in children with AD/HD include Conduct Disorder (CD) or Oppositional Defiant Disorder (ODD) (Wallis, Russell, & Muenke, 2008). According to Biederman, Newcorn, & Sprich (1991), about 20% of children with AD/HD also have a CD and about 30% to 45% have ODD. Learning Disorders and Communication Disorders are also co-occurring disorders among children with AD/HD.

Disruptive behavior disorders include CD and ODD (Wenar & Kerig, 2000). Conduct disorder is marked by behavior patterns that break societal norms, or violates the rights of others. This may include starting fights, using weapons, truancy, stealing, and setting fires. ODD includes patterns of hostility, which consists of arguing with adults, defying their requests, deliberately annoying others, lying and bullying, as well as losing one's temper.

Moreover, AD/HD can increase the onset of behavior problems (Wenar & Kerig, 2000). According to Stouthamer-Loeber, Loeber, & Thomas, (1992), precursors and the sequence of conduct problems allows for the construction of the developmental models and behavior problems through infancy to adulthood. It is stated that the difficult temperament arises in infancy and develops into hyperactivity during the preschool years and then to oppositionality in

school aged children. This continues into conduct problems and delinquency into adolescence and ultimately antisocial personality disorder in adulthood (Wenar & Kerig, 2000). Though not all children with AD/HD will develop CD or ODD when there is a manifestation, the children are likely to retain their prior behavior.

Mood disorders affect approximately 10% - 20% of children with AD/HD (Biederman, et al., 1991). Some mood disorders and AD/HD have similar and overlapping symptoms as well as very specific symptoms (Passarotti, Sweeney, & Pavuluri, 2009). For example, neurocognitive deficits present similarly in both AD/HD and bipolar disorder. Cognitive flexibility, sustained attention, and verbal working memory deficits are shown in pediatric bipolar disorder (Dickstein et al., 2005; Pavuluri, Henry, Devineni, Carbray, & Birmaher, 2006). Cognitive problems for youths with AD/HD include deficits in executive functions, planning and response inhibition, attention, vigilance, and working memory (Doyle et al., 2005; Rubia et al., 2001; Seidman, Valera, & Makris, 2004).

Anxiety Disorders are more prevalent in children with AD/HD as well (DSM-IV-TR, 2007). For example, these children had a rate of anxiety of 25%, whereas the children in the general population without AD/HD had a 5% rate of anxiety (DSM-IV-TR, 2007). There are four domains in which anxiety symptoms present. These include cognitive, affective, physical and behavioral (Pollack et al., 1996). Cognitive anxiety can range from catastrophic thinking to rumination and vigilant apprehension according to Biederman et al., (1996). Attention seeking, overdependence, agitation, tantrums, and rituals are features of behavioral anxiety. Since there is overlap between childhood anxiety disorder and AD/HD it can be misinterpreted (Spencer, Biederman, & Mick, 2007).

Learning Disorders and Communication Disorders are also associated with AD/HD (DSM-IV-TR, 2007). Mathematics Disorder (MD) is often difficult to define in the context of AD/HD, but in most cases, the main deficits associated with low mathematics achievement includes poor reading skills, memory, visuospatial skills, and executive skills (Capano, Minden, Chen, Schachar, & Ickowicz, 2008). The researchers state that AD/HD may be the primary cause of MD in children with AD/HD and that MD is often related to the Inattentive Type (Marshall, Hynd, Handwerk, & Hall, 1997; Marshall, Schafer, O'Donnell, Elliott, & Handwerk, 1999; Willcutt, Pennington, Olson, Chhabildas, & Hulslander, 2005). According to researchers, Reading Disorders (RD) occurs in about 5% to 9% of the AD/HD population (Shaywitz, Shaywitz, Fletcher, & Escobar, 1990). Phonological decoding deficits are characteristic of RD (Mazzocco & Myers, 2003). According to Butterworth (2005), RD and MD often occur together at an estimated 17% to 64%.

### **Demographic data**

According to the Center for Disease Control and Prevention (CDC, 2009) as of 2006, 4.5 million children ages 5 to 17 have been diagnosed with AD/HD. Both males and females are affected with the disorder, yet the type and severity may differ according to gender (Sadiq, 2007). AD/HD affects youth from across all socioeconomic levels (Green, Wong, & Atkins, 1999). The disorder has significant social costs resulting in difficulties to families (Barkley, Murphy, & Kwasnik, 1996; Biederman et al., 1991; Fletcher et al., 1996) and peers (Flicek, 1992). Health risks are also greater among persons with AD/HD, which may include substance abuse (Sherman, 2007), and unintentionally injury (CDC, 2006; Department of Health and Human Services [DHS], 2006; DiScala, Lescohier, Barthel, & Li, 1998; Schwebal, Speltz, Jones, & Bardina, 2002). Children with AD/HD are more likely than non-AD/HD children to be

expelled from school, suspended, or held back a grade (LeFever, Villers, Morrow, & Vaughn, 2002). The following sections will discuss the demographic characteristics of youth with AD/HD, their background characteristics, and the costs and risks associated with the disorder.

**Age, gender, race, and ethnicity.** AD/HD occurs in school-aged children, but can also occur in preschool aged children and even toddlers. The neurobehavioral disorder generally affects male and female children ages 4 to 17 years of age (Visser, Lesesne, & Perou, 2007). AD/HD has marked differences between boys and girls according to a 2003 study conducted by the Center for Disease Control. Boys (9.5%) were more likely to be diagnosed with AD/HD than girls (5.9%) were. When girls are diagnosed with AD/HD, they are more likely to have the Inattentive Type whereas boys are generally diagnosed with Hyperactive-Impulsive Type or Combined Type according to the CDC (2003). Since boys are more likely to have Impulsive Type or Combined Type, they are at greater risk for having co-occurring disorders (CDC, 2003).

The same study conducted by the CDC (2003), found that Black males (12%) and White males (12%) had the same percentage of having ever been diagnosed with AD/HD. In contrast, multiracial males (13.5%) had a slightly higher prevalence of AD/HD. Multiracial females (5.8%) had a higher prevalence of AD/HD than Black females (3.6%) and white females (5.0%). Hispanic males (4.8%) had a marked difference between that of Black and White males of similar age. Hispanic females (2.5%) had one of the lowest prevalence rates in the 2003 study conducted by the CDC.

A 2006 study of children ages 3 to 17 revealed similar results according to the CDC. Household interview surveys were conducted to determine the frequencies at which a youth had 'ever been told of having AD/HD' (CDC, 2006). The CDC stated that White children (7.6%) and Black children (7.4%) yielded nearly the same frequencies. Multiracial children (20.7%)

had a significantly higher frequency than that of Black and White children in the 2006 study. Hispanic children (5.1%), especially Mexican or Mexican American children (4.7%) again like the 2003 study had the lowest frequency according to the CDC (2006).

**Parents' education, family structure, and income.** Frequency percentages varied according to parents' education, family structure, and income in children. A survey by the CDC in 2006 asked parents if they 'had ever been told that their child had AD/HD' (CDC, 2006). According to the study, the most frequent parental education level was high school or GED (8.5%). Parents with less than a high school diploma (5.0%) had an even lower frequency than that of parents with more than a high school diploma (7.5%) according to the CDC (2006). The CDC (2006) found that children living with both parents (5.9%) in the household had the lowest frequency in contrast to that of children living with no mother or father in the household (10.7%). Furthermore, they found that children living with a father (8.6%) and no mother figure had a lower frequency than that of a child living with a mother (11.1%) and no father figure. The 2006 CDC data found that family incomes less than 20k (9.7%) had the highest frequency whereas family incomes of 75k or more (6.8%) had the least.

**AD/HD and locality.** Children ages 4 to 17 year olds having ever been diagnosed with AD/HD vary geographically within the nation (CDC, 2006). Among the states, Alabama, Louisiana, Kentucky, and West Virginia had the highest percentage ( $\geq 10.1\%$ ). California, Arizona, Utah, and Colorado had the lowest percent ( $\leq 6.0\%$ ) reported by the CDC (2006). Michigan, along with most of the eastern states, and several central states had a 9.1 percent to 10.0 percent of their youth having ever been diagnosed with AD/HD (CDC, 2006).

The prevalence of medication treatment of youth ages 4 to 17 with AD/HD has little correlation with the prevalence of diagnosis within the state (CDC, 2006). The least AD/HD

medicated states include California, Nevada, Utah, Arizona, Colorado, Illinois, New York, New Jersey, Connecticut, and Hawaii with prevalence of 2.1% to 3.4%. At 5.5% to 6.5%, Iowa, Rhode Island, Arkansas, Louisiana, Alabama, Georgia, South and North Carolina, Virginia, West Virginia, and New Hampshire were more inclined to medicate their AD/HD youth according to the 2006 CDC study. The CDC (2006) found that rates of medication treatment within Michigan, Florida, and Texas, to name a few, ranged from 4.5% to 5.4%. The remaining Midwestern, central and western states have medication prevalence between 3.5% and 5.4% (CDC, 2006).

**AD/HD and practice field.** Children with AD/HD can be found in almost every child-serving system. Studies have shown that some practice settings are more likely to have a higher number of children diagnosed with AD/HD. In a school setting, where there are a greater number of children, one can expect to work with a greater number of children with AD/HD. In special education classes, where the children are more likely to have been diagnosed with AD/HD, the number of children with the disorder is higher. For children attending regular class settings, those with AD/HD are more likely to display behavioral problems (DuPaul & Stoner, 2003). Moreover, children in the foster care system are more likely to be diagnosed with AD/HD than children who are not in the foster care system. In addition, these children are more likely to be taking medication for a mental health related disorder.

#### **AD/HD and associated risks**

**Financial risks.** AD/HD has a major impact on society including financial costs, disruption to schools, and the possibility of criminal behavior and substance abuse (Biederman et al., 1991). The aggregate annual health and treatment related costs for children under the age of 17 with AD/HD was approximately \$14, 576 per individual (Pelham, Foster, & Robb, 2007). A

secondary analysis looked at the annual expenses related to raising a child with AD/HD. It revealed that the annual cost per child for health and mental health related services totaled \$2,636. The analysis reported that educational costs totaled \$4,900. Furthermore, the study looked at the totals related to crime and delinquency, which came to \$7,040.

A review of Medicaid claims for stimulant refills between 1993 and 1996 revealed that the annual health care costs for children ages 3 through 15 totaled \$1,895 (1998 dollars). Outpatient mental health services under Medicaid totaled \$500 to \$800 annually (Jones, Foster, & Gottschall, 2007). A small percentage of children were admitted to inpatient mental health, which created a significantly greater cost at \$6,000 per child. Children with AD/HD and co-current disorders had costs that were significantly higher than that of the general population (Kelleher, Childs, & Harman, 2001). It is estimated that the annual per child health care costs for the treatment of AD/HD ranges between \$790 and \$5,518 (Pelham et al, 2007).

Children with AD/HD accrue educational costs as well that are greater than that of children without AD/HD. Under section 504 of the Rehabilitation Act of 1973, better known as the Individuals with Disability Act (IDEA), a child with AD/HD may receive special services. Special education, school counseling, and school retention costs averaged \$4,175 annually (Jones et al., 2007). Another study measured the reports of parents and their experience with special education services, retention, and disciplinary referrals (Pelham et al., 2007). Based on the US Department of Education, the cost of educating children with AD/HD is markedly higher than that of regular education. Regular education is about \$265 annually, whereas education for those with AD/HD is about \$4,900 annually.

Not only is AD/HD costly for the educational system, it is also an economic burden for the justice system. In children with AD/HD, poor impulse control leads to the greater likelihood

of illegal behavior such as underage drinking and illegal drug use. Delinquency and substance use are characteristic of older youths who have AD/HD. Truancy, offending behavior, and social delinquency rates are higher among children with AD/HD (Barkley et al., 1990; Hinshaw, 1992; Hoy, Weiss, Mindle, & Cohen, 1978; Satterfield et al., 1982; Weiss & Hechtman, 1986). All of these behaviors can lead to legal issues, such as arrest or imprisonment. By combining the cost of arrests and the cost of juvenile justice placements, the estimated total cost is about \$11 to \$935 annually. The cost to the victim of crimes committed by AD/HD youth was found to be approximately \$6,600 annually (Cohen, 2005).

**Educational difficulties.** Elementary school children with AD/HD were more likely to show decreased academic performance, educational problems, and underachievement according to several studies (DeShazo, Lyman, & Klinger, 2002; Fergusson & Horwood, 1995; Fergusson, Horwood, & Lynskey, 1993; Hinshaw, 1992; Hinshaw, 1992; Rapport, Scanlan, & Denney, 1999). Their scores on reading and mathematics tests are greatly lower than that of the control group according to Biederman et al., (1996). As a result, many of these children require tutoring, remedial pull out classes, and special accommodations.

Academic difficulties are reported to exist through adolescence and into young adulthood. Several longitudinal studies have shown that youths with AD/HD were more likely to have poor grades on report cards, fail grades, have lower class rankings, and perform poorly on standardized academic achievement tests when matched to non-AD/HD controls (Barkley, Fischer, Edelbrock, & Smallish, 1990; Weiss, Hechtman, & Perlman, 1978; Weiss, Hechtman, Perlman, Hopkins, & Wener, 1979). Poor academic performance persists for many of these youths diagnosed with childhood AD/HD. Longitudinal studies indicate lower rates of college graduation and lower rates of college attendance when compared to controls (Barkley, 2006;



Barkley, 2002; Mannuzza, Klein, Bessler, & Malloy, 1993; Weiss, Hechtman, Milroy, & Perlman, 1985).

**Health risks.** In 2006, there were an estimated 7 million ambulatory visits for the care of AD/HD (Schappert & Rechtsteiner, 2008). With poor impulse control, children with AD/HD are more likely to take risks that could endanger themselves or others. Studies have shown that injury rates were higher for AD/HD children across demographics. Higher rates controlling for age, gender, and health insurance were higher for children with AD/HD when compared to other children (CDC, 2006). Children with AD/HD are more likely to encounter injuries that require hospital visits (Leibson, Katusic, Barbaresi, Ransom, & O'Brien, 2001).

Moreover, preschool and school aged children with AD/HD have greater health risks than children without AD/HD. In fact, preschool children who have AD/HD are more likely to have accidents and obtain more injuries more often (Angold & Egger, 2007; Lahey et al., 1988; Rappley et al., 1999). Excessive running and climbing, which is characteristic of preschool aged children with AD/HD, often results in scrapes and bruises. School age children with AD/HD are more likely to engage in risky behavior more so than that of non-AD/HD children, which leads to major injuries (CDC, 2009).

Likewise, minimal foresight about potential consequences causes adolescents with AD/HD to have a greater propensity to be involved in risky sexual activity, substance abuse, and auto accidents (Barkley & Murphy, 1996; Barkley, Murphy, & Kwasnik, 1996; Swensen et al., 2004; Woodward, Fergusson, & Horwood, 2000). These youths have a higher rate of sexually transmitted diseases, four times that of their non-AD/HD counterparts (Marshall, 2007). Females have a higher rate of pregnancy, almost ten times that of non-AD/HD females according

to a Milwaukee follow up study (Marshall, 2007). According to Marshall (2007), as youths move into adulthood, the risk of accidental death increases.

Studies have shown these symptoms persist well into adulthood in 30% to 50% of cases (Konofal, Lecendreux, Arnulf, & Mouren, 2004). Some adults may enter partial remission of the disorder, while others may have trouble with time management and organization (Young & Amarasinghe, 2009). Anxiety, emotional lability, anger, frustration, and sleep problems are more likely in adults with AD/HD (Young & Bramham, 2007). Adults can encounter a number of negative life events because of AD/HD. According to a study conducted by Biederman et al., (2007), adult females with AD/HD were 3.6 times more likely to have bulimia nervosa compared to that of non-AD/HD females. Furthermore, adults with AD/HD have problems forming relationships and maintaining relationships putting them at greater risk for divorce (Wilens et al., 2004). Academic underachievement and unemployment is also greater among persons with AD/HD. Adults who were diagnosed with AD/HD as children are more likely as adults to have antisocial personality disorder or non-alcohol substance abuse issues (Kessler et al., 2006; Mannuzza et al, 1993).

**Familial difficulties.** Due to the educational, developmental, and behavioral problems in children with the disorder, the demands, and energy involved in caring for AD/HD children can cause significant stress on the family and marital functioning (Anastopoulos, 1992; DuPaul, McGoey, Eckert, & VanBrakle, 2001; Keown & Woodward, 2002; Peters, Calam, & Harrington, 2005). Children with AD/HD are less likely to comply to parental requests and less likely to cooperate (Barkley et al., 1985; Cunningham & Barkley, 1979; DeWolfe, Byrne, & Bawden, 2000; Gordon et al., 2005). Moreover, children with AD/HD and co-occurring disorders such as

ODD or CD are often more difficult to manage (Barkley et al., 1990; Cunningham & Boyle, 2002).

According to Chronis (2004), parents of children who have AD/HD are 2 to 4 times more likely to have mental health problems such as depression, anxiety, and substance abuse. Mothers of children with AD/HD have reported higher rates of self-blame and social isolation (Johnston & Mash, 2001; Mash & Johnston, 1990). Likewise, depression is more common among mothers with AD/HD children (Befera & Barkley, 1985; Bernier & Siegel, 1994; Brown & Pacini, 1989; Lahey et al., 1988; Sandberg, Wieselberg, & Shaffer, 1980; Webster-Stratton, 1988; Webster-Stratton, & Hammond, 1997). Parents with AD/HD children experience their role in parenting with less gratification and more difficulties than parents with non-AD/HD children do (Anderson, Williams, McGee, & Silva, 1987; Breen & Barkley, 1988; Konstantareas & Homatidis, 1989; Fischer et al., 1990).

Family environments that experience ongoing stress can put the children, as well as, the parents at risk for psychological and physical health problems according to Cunningham (2007). The entire family structure is threatened when a child has AD/HD. Problematic behavior can place intense strain on relationships with siblings as well (Marshall, 2007). In addition, marital conflict can contribute to negative effects on the children's physical and psychological health (Grych & Fincham, 1990; Repetti, Taylor, & Seeman, 2002; Troxel & Matthews, 2004). Research has shown an association between conduct problems, marital conflict, and family dysfunction (Cunningham & Boyle, 2002; Locke & Wallace, 1959; Szatmari, Offord, & Boyle, 1989). It is believed that the conflict within the marriage may result in a disruption of parent-child relationships, inconsistent discipline practices, and the modeling of negative behavior

(Cunningham, 2007). These familial characteristics are similar among families with AD/HD children (Bernier & Siegal, 1994).

In many of the families, self-reinforcing behavior patterns occur between AD/HD children and their parents (Marshall, 2007). In addition, parents' attitudes toward their children can have an effect on them (DeMarle, Denk, & Ernthausen, 2003). In fact, the literature indicates that children with AD/HD receive less positive feedback and more negative feedback from their parents than children without AD/HD (Befera & Barkley, 1985; Cunningham & Barkley, 1979; Humphries, Kinsbourne, & Swanson, 1978; Mash & Johnston, 1990). In these situations, maladaptive and counterproductive parenting strategies have been known to exacerbate the negative behavioral problems in children (Patterson, DeBaryshe, & Ramsey, 1989). This stress can cause children with AD/HD to feel inadequate, hopeless, worthless, and discouraged (Barkley, 2002).

### **Etiology of AD/HD**

Despite AD/HD being the most commonly diagnosed mental health disorders in children, skepticism about what causes AD/HD continues. Understanding treatment methods begins with understanding the etiology of the illness. Some argue that the disorder is genetic in which medication is required to combat the symptomatology (Greenhill, 2004; Plomp et al., 2009). Other persons believe that the disorder is a result of social factors that affect the children's ability to cope and respond to their environment. Others believe that AD/HD is a complex disorder and that genetics as well as the environment plays a role in its etiology. The following section will discuss possible etiological factors associated with the disorder.

**Structural.** Injuries sustained to the prefrontal cortex and the parietal cortex increase the risk for AD/HD according to Wallis, Russel, and Muenke (2008). The frontal lobe is associated

with higher mental functioning such as conceptualization, judgment, and planning. It also is responsible for voluntary control over most skeletal muscles (Mosby, 2002). The frontal lobe is located beneath the frontal bone and occupies both right and left cerebral hemispheres (Mosby, 2002) and it is responsible for inattention and inhibition (Wallis et al., 2008). Patients that have sustained injuries to the frontal lobes and the prefrontal cortex have presented with symptoms similar to that of persons with AD/HD (Benton, 1991; Heilman, Voeller, & Nadeau, 1991; Levin, 1938; Mattes, 1980).

In addition, studies have shown that children with AD/HD have decreased blood flow to the prefrontal regions of their brains (Lou, Henriksen, & Bruhn, 1984, 1990; Lou Henriksen, Bruhn, Borner, & Nielsen, 1989; Sieg, Gaffney, Preston, & Hellings, 1995). Varying sizes in the brain structures of children with AD/HD have been shown in a number of studies as well. According to a 1990 study involving children with AD/HD, learning disabled (LD) children and children without these diagnoses discovered that the children with AD/HD have smaller right hemisphere plana temporale<sup>3</sup> than the control group and the LD group (Hynd, Semrud-Clikeman, Lorys, Novey, & Eliopoulos, 1990). Another study found similar findings. In 1996, Baumgarder and colleagues conducted Magnetic Resonance Imaging (MRI) on children with Tourette syndrome, Tourette syndrome and AD/HD, AD/HD and children unaffected with any of the disorders. The researchers found that the children with AD/HD have smaller anterior region of the corpus callosum<sup>4</sup> (Barkley, 1997).

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<sup>3</sup> - An area of the cerebral cortex between Heschl's gyrus and the sylvian fissure that is involved in speech and is usually larger in the cerebral hemisphere on the left side of the brain

<sup>4</sup> - The great band of commissural fibers uniting the cerebral hemispheres

Although the previously mentioned studies had small sample sizes, the studies with larger sample sizes have proved slightly similar results. In 1996, Castellanos and colleagues discovered that persons with AD/HD had smaller cerebellar volume<sup>5</sup>. They also found no difference in the corpus collosum between children with AD/HD and children without unlike that of Hynd and colleagues (1990). More similar to previous AD/HD studies, research conducted by Filipek and colleagues (1997) found that in the regions of the parietal lobe and occipital lobe<sup>6</sup> there was smaller posterior volumes of white matter (Barkley, 1997).

All in all the decrease of total cerebral volume has proved most consistent in brain imaging studies in persons with AD/HD (Castenllanos et al., 1996, 2001, 2002; Filipek et al., 1997; Kates et al., 2002; Mostofsky, Cooper, Kates, Denckla, & Kaufmann, 2002; Durston et al., 2004). Evidence of differing posterior inferior cerebellar vermis volumes in persons with AD/HD compared to non AD/HD persons has also been replicated in multiple studies (Castellanos et al., 1996, 2001, 2002; Hill, 2002; Durston et al., 2004). Although these results indicate a difference between brain structures in persons with and without AD/HD, it does not prove causality (Barkley, 1997). This indicates the possible connection between AD/HD and brain's pathophysiology (Lantieri, Glessner, Hakonaraon, Elia, & Devoto, 2010).

**Genetic.** Research has shown that genetics are a contributing factor in AD/HD (Barkley, 1997; Lantieri et al., 2010; Nikolas & Burt, 2010; Plomp et al., 2009; Rowland, Lesesne, & Abramowitz, 2002; Spencer et al., 2007; Wallis et al., 2008). Over the past three decades, studies have looked at AD/HD in families, twins, and adopted persons (Wallis et al., 2008). In

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<sup>5</sup> - The trilobed structure of the brain, lying posterior to the pons and medulla oblongata and inferior to the occipital lobes of the cerebral hemispheres, that is responsible for the regulation and coordination of complex voluntary muscular movement as well as the maintenance of posture and balance

<sup>6</sup> - The pyramid-shaped area at the back of each hemisphere of the brain that deals with the interpretation of vision

families, children with the same parents share 50% of their genes. Fraternal twins or dizygotic twins also share 50% of their genes unlike that of half siblings who share 25% of their genes. Stepsiblings and adopted siblings share no genetic material and are biologically unrelated. Identical twins or monozygotic twins, on the other hand, share 100% of their genetic material because of the single zygote splitting during gestation.

For example, a large-scale twin study examining genetics and the environment found that there were substantial genetic influences and genetic correlations between inattention and hyperactivity (McLoughlin, Ronald, Kunsti, Asherson, & Plomin, 2007). In fact, according to Biederman et al., (1992), Bradley & Golden, (2001), Faraone et al., (1997), Thapar et al., (2005), siblings of the children with the disorder have a three to fivefold increase in risk for AD/HD. Identical twins or monozygotic twins have a 51% concordance for AD/HD diagnoses (Goodman & Stevenson, 1989).

Additive genetics includes the sum effects of genetic influences across several points or loci on a gene. Height, for example, is an additive genetic effect and is dependent upon the total of “tall genetic markers” provided by each parent (Nikolas & Burt, 2010). Therefore, parents and children would hold similarities across genetic loci. Nonadditive genetics, or dominate genetics on the other hand, involves interactions between alleles that influence that particular trait (Nikolas & Burt 2010). For instance, eye color is determined by the interaction of each parent’s allele for “eye color”. In general, parent-child similarity does not result when nonadditive genetics are involved (Nikolas & Burt, 2010). Researchers have reported that AD/HD is mostly influenced by additive genetics (Eaves, Silberg, Meyer, & Maes, 1997; Kuntsi, Gayan, & Stevenson, 2000; Saudino, Roland, & Plomin, 2005; Van Beijsterveldt, Verhulst, Molenaar, & Boomsma, 2004). While other researchers have reported that AD/HD is influenced

from both additive and dominant genetics (Hudziak, Althoff, Derks, Faraone, & Boomsma, 2005; Rietveld, Hudziak, Bartels, Van Beijsterveldt, & Boomsma, 2003, 2004; Thapar et al., 2005).

Since comorbidity occurs in more than half of the cases of AD/HD, it has been suggested that the etiologically is distinct (Wallis et al., 2008). According to Faraone, Biederman, Keenan, & Tsuang (1991b), severity of illness and levels of etiological factors can be placed on a continuum that corresponds with AD/HD, AD/HD and ODD as well as AD/HD and CD. More than by chance alone, antisocial disorders, and AD/HD have occurred in the same relatives, indicating that both AD/HD with and without antisocial personality disorder may have distinct etiology (Faraone, Biederman, Jetton, & Tsuang, 1997). Moreover, AD/HD and conduct disorders are phenotypically variable as seen in the comorbidity of AD/HD and ODD, AD/HD and CD, ODD and CD, as well as CD and alcohol abuse/dependence (Jain et al., 2007). Castellanos & Tannock (2002) and Jain et al., (2007) indicates that the connection between AD/HD and disruptive disorders is a result of epistasis<sup>7</sup>, genetic heterogeneity, and pleiotrophy<sup>8</sup>.

One of the most frequently studied risk gene in AD/HD is the dopamine receptor D4 (DRD4) (Heiser et al., 2004; Plomp et al., 2009; Thapar et al., 2005; Waldman & Gizer, 2006). D4 is one of the five receptors of dopamine, which are located in the frontal cortex, midbrain, amygdale<sup>9</sup>, and the cardiovascular system. The postsynaptic dopamine receptor is predominately expressed in the prefrontal cortex (Durstun et al., 2005; Lahti et al., 1995; Primus et al., 1997). D4 has been localized to chromosome 11 according to researchers at the Weizmann Institute of

<sup>7</sup> - Involving an interaction among an unknown number of genes

<sup>8</sup> - Where any gene may be associated with a range of phenotypes

<sup>9</sup> - One of two small, almond-shaped masses of gray matter that are part of the limbic system and are located in the temporal lobes of the cerebral hemispheres. Also called *amygdaloid nucleus*



Science (2010). Moreover, dopamine is a neurotransmitter or a chemical that is released from a nerve cell, which transmits an impulse from a nerve cell to another nerve, muscle, organ, or other tissues. A mutation in the D4 gene has been associated with AD/HD and other autonomic nervous system dysfunction.

VNTR alleles range from two to 11 repeats (2R-11R). A number of studies have indicated that DRD4 7R allele is associated with AD/HD (MIM 126452) (Faraone et al., 2001; Grady et al., 2003; Swanson et al., 2003). In fact, in western populations, the 7R-allele and AD/HD have shown an association (LaHoste et al., 1996), whereas in the Chinese population the 2R-allele may be linked to AD/HD (Leung et al., 2005). It is also suspected that with the complexity of genetic variants deleterious effects could occur with DRD4 7R and other genes (Ding et al., 2002; Grady et al., 2003).

Similarly, the dopamine active transporter (DAT-1) is also one of the most studied genes in AD/HD (Heiser et al., 2006; Plomp et al., 2009; Thapar et al., 2005; Waldman & Gizer, 2006). The DAT1-gene is a protein located on chromosome 5 that mediates the reuptake of dopamine from the synapse and is the primary regulator of dopamine. High levels are indicated in the striatum<sup>10</sup>, substantia nigra<sup>11</sup>, and in the nucleus accumbens<sup>12</sup> and in the prefrontal cortex<sup>13</sup>,

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<sup>10</sup> - Also known as the corpus striatum, neostriatum, or striate nucleus, is a subcortical (i.e., inside, rather than on the outside) part of the forebrain.

<sup>11</sup> - Is a brain structure located in the mesencephalon (midbrain) that plays an important role in reward, addiction, and movement

<sup>12</sup> - Plays a central role in the reward circuit. Its operation is based chiefly on two essential neurotransmitters: dopamine, which promotes desire, and serotonin, whose effects include satiety and inhibition.

<sup>13</sup> - Suspected to play an important role in cognitive control, in the ability to orchestrate thought and action in accordance with internal goals

hippocampus<sup>14</sup>, and amygdale at a lower degree (Madras, Miller, & Fischman, 2005), as well as, the cerebellar vermis<sup>15</sup> (Melchitzky & Lewis, 2000). These genes can have a variable number tandem repeats (VNTR) between the 2R and 11R alleles. Among the DAT-1 10R allele and AD/HD, researchers found a significant associated between the two (Cook et al., 1995; Gill, Daly, Heron, Hawi, & Fitzgerald, 1997; Waldman et al., 1998; Daly et al., 1999). Some counter these findings stating that the findings are due to a small odds ratio (Faraone et al., 2005; Li, Sham, Owen, & He, 2006; Yang et al., 2007).

Though still in its infancy, more recent research has shown that genetic and environmental interactions can have an impact on AD/HD presentations (Wallis et al., 2008). Many researchers have discovered that specific alleles when combined with specific social environments were associated with AD/HD according to Wallis et al., (2008). Hyperactivity - impulsivity and inattention for example were exhibited more for adolescents who grew up with greater adversity and who are homozygous for 10 R allele or the 6R allele. However, adolescents who lived with less adversity combined with other genotypes exhibited less inattention and hyperactivity-impulsivity (Laucht et al., 2007).

Reports show that prenatal exposure to lead, alcohol, and tobacco may also increase the risk of AD/HD (Acosta, Arcos, & Muenke, 2004; Banerjee, Middleton, & Faraone, 2007). Todd & Neuman (2007) found an increased risk for severe Combined Type AD/HD when the mother had smoked during pregnancy and when there was a presence of polymorphic cholinergic receptor nicotinic alpha 4 (CHRNA4) gene. CHRNA4 has a high affinity for nicotine and when

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<sup>14</sup> - An area buried deep in the forebrain that helps regulate emotion and memory

<sup>15</sup> - Is a narrow, worm shaped structure in between both sides of the cerebellum. The cerebellum is an area in the back, bottom part of the brain that plays an important role in movement and coordination.

stimulated promotes a release of dopamine. Additional studies have indicated that there is an increased risk for hyperactivity-impulsivity when children who are homozygous for the DAT-1 10R allele are exposed to prenatal smoke (Becker, El-Faddagh, Schmidt, Esser, & Laucht, 2008; Kahn, Khoury, & Nicholas, 2003).

**Environmental.** Patterson et al. (2000) states that family factors and processes are precursors to the development of child hyperactivity and other antisocial behaviors. Little research, however, focuses on the family environment and its effect on the course of AD/HD (Cantwell, 1996; Goldman, Genel, Bezman, & Slanetz, 1998; Wamboldt & Wamboldt, 2000). It is well known, however, that children's development is influenced by the family environment (Harper & McLanahan, 2004; Henry, Tolan, & Gorman-Smith, 2001; Wiesner & Capaldi, 2003; Wiesner & Windle, 2004). Despite this evidence, some argue that these studies cannot truly separate environmental effects from genetic related AD/HD (Wallis et al., 2008).

To understand maladaptive behaviors such as AD/HD, CD, and ODD in the context of social etiology, it is important to look at children's development based on non-pathological standards. This will assist with the distinction between normal development and pathological disorders. Looking at attachment, initiative, self-control, moral development along with cognitive development, anxiety, sexual development, aggression and peer relations of children one may understand the effects that the social environment has on children.

**Attachment.** There are important variables in children's development that when altered can have negative effects on children's behavior and relation to the outside world. Love, anxiety, fear, and anger are a normal part of children's development according to Wenar and Kerig (2000). The *social smile, anxiety, and hostility* are normal phases of attachment formation between children and adults. During the *social smile* phase, getting the infants to smile is

enjoyable for the adult and equally rewarding for the infant (Wenar & Kerig, 2000). Unlike during the *social smile* stage, at the sixth and ninth month the infants become more *selective* wanting only their mother or care givers. Infants may have *separation anxiety* when their mother or caregiver leaves or the infant may have stranger anxiety when a stranger or unfamiliar person is near (Wenar & Kerig, 2000). This anxiety is a normal part of infant development and if not present may indicate deviant development. *Hostility* can manifest when children feel as though they needed their mother and she was not there even if the separation was for good reason (Bowlby, 1973).

Caregiving also plays a crucial role in the *secure* attachment of infants (Wenar & Kerig, 2000). According Wenar and Kerig (2000), when parents consistently pacify their infants' needs quickly and appropriately, *secure* attachment is more likely to develop. *Secure* attachment is a precursor for successful socialization. Infants learn to quell instant gratification to maintain parental love because should the infant behave poorly, the withdrawal of love will occur (Wenar & Kerig, 2000). In a situation where love is inadequate or demands are excessive, it is likely that deviant behavior will occur (Wenar & Kerig, 2000).

***Initiative.*** Self-definition and self worth derives from *initiative* in healthy development (Wenar & Kerig, 2000). This begins at infancy, when they have a growing curiosity of their environment and seek to explore and understand it. Soon toddlers discover who they are by what they can do and when they are successful, they gain a sense of pride and self-worth according to Wenar and Kerig (2000). Before middle childhood, competence and social acceptability becomes intertwined with their view of self-worth. Then into middle childhood, *academic*, *physical*, and *social* self-esteem becomes the basis of *global sense of self-worth* (Wenar & Kerig, 2000). Into adolescence, the importance of self worth becomes based upon *close friendship*,

*romantic appeal*, and *job competence*. Throughout these stages, their self-evaluation predicts their behavior (Wenar & Kerig, 2000). Centered on curiosity, initiative requires children to focus on the interesting task before them. When children are unable to focus, the healthy initiative is altered and a scattered behavior may appear like that of children with AD/HD.

***Self-control.*** Socialization is one variable involved in self-control according to Wenar and Kerig (2000). Punishments and rewards along with healthy attachment are intrinsic to self-control (Wenar & Kerig, 2000). When a healthy attachment is formed between parents and children, the children will be more apt to conform to the parental requests as to receive love and avoid disapproval or the lack of love.

According to Kochanska, Aksan, and Koenig (1995), the parents' socializing directives serve as a foundation, so that children will eventually behave in a prosocial manner derived from their intrinsic values. Lastly, modeling behavior or the behavior that the parents demonstrate has an impact on the children's ability for self-control (Wenar & Kerig, 2000). For instance, a father punishing his children by beating them is showing uncontrolled behavior that the children may also display (Wenar & Kerig, 2000).

The process of learning self-control is based upon *cognitive variables*, which include the understanding of *cause-and-effect*, *language development*, and the integration of guiding *principles* of behavior (Wenar & Kerig, 2000). Toddlers must be able to remember the behavior that leads to rewards and the behaviors that lead to punishments. From here, children must have the ability to form together pieces of experiences to help guide their overall behavior. As language develops so does children's ability for greater self-control. According to Kochanska et al. (1995), verbalization and understanding of directives in cognitively developing children becomes more and more effective. Self-control becomes greater when children can stop and

think to remedy immediate action and use their thought content to guide their behavior (Wenar & Kerig, 2000).

The ability to monitor, evaluate, and modify one's emotional reactions to accomplish one's goals is the definition of emotion regulation according to Thompson (1994). Problems may arise when children *underregulate* or *overregulate* their emotions (Cole et al., 1994). Having the ability to moderate aggression and cope with anxiety is important in healthy emotion regulation (Wenar & Kerig, 2000). The inability to temper these feelings can result in other psychopathologies, such as depression and conduct disorders (Cicchetti & Izard, 1995), which can co-occur in children with AD/HD.

In addition, parental discipline can influence the children's ability to control self. Baumrind (1991) has derived four styles of parenting that illustrates how positive and negative parenting styles that can influence children's behavior (Wenar & Kerig, 2000). These include authoritarian, permissive, authoritative, and neglectful. *Authoritarian* parenting style is said to create aggressive, uncooperative, and fearful children who result in having low self-esteem, low initiative, and low competence with peers. This is due to the high structure and low warmth provided by demanding, controlling, and unreasoning parents. *Permissive* parenting style leads to dependent children who are irresponsible aggressive or spoiled. This is due to the lack of structure though it is high on warmth. *Authoritative* style parenting is high structure and high warmth and results in the children being self-reliant, self-controlled, secure, popular, and inquisitive. The parents set the standards and the children are expected to meet them. Parents are highly involved, consistent, loving. These parents communicate with their children and they are willing to listen to the children and respect the children's point of view (Wenar & Kerig, 2000). *Neglectful* parenting style rates low on warmth and low on structure where the parents

are often self-centered, indifferent, or uninvolved in the children's lives. The children often model the parent's selfish behavior, which results in the children being impulsive moody, truant, and lacking long-term goals. Children who begin drinking and smoking early in childhood are also said to be associated with self-centered parents (Wenar & Kerig, 2000).

Poor parenting can result in several negative outcomes. Unconcerned and lenient parenting is often a source of antisocial behavior according to Wenar and Kerig (2000). Moreover, unpredictable parenting, which goes between neglectful parenting and harsh parenting, is likely to also result in antisocial behavior (Wenar & Kerig, 2000). When children receive love, it makes self-control worthwhile whereas retaliatory parenting brings about rebellion and forms impulsiveness and hostility in children. Rude, demanding, and disrespectful tyrants at home are likely a result of parents imposing few restrictions on their children (Wenar & Kerig, 2000). These children are bossy and uncooperative with peers and often have few friends according to Wenar & Kerig (2000).

***Moral development.*** The "good boy" or "bad boy" evaluation, acts as a control mechanism in normal childhood development (Wenar & Kerig, 2000). Parents give evaluation, which helps to create the conscience or the basis of moral development in children. Being love-worthy is a great pleasure for young children during the pre-conventional morality stage, so they, according to Kohlberg (1976), evaluate their actions based on if they are good or bad. In this instance, good equals reward and bad equals punishment. During the *conventional stage*, youths tend to see situations as absolute, such as right is right and wrong is wrong. These youths seek to maintain approval by following conventional standard like those seen in religion for example (Wenar & Kerig, 2000). The *post-conventional* level the youth have an individual conscience holding themselves accountable to the universal principles according to Wenar and Kerig (2000).

Moral reasoning holds different emphasis during the stages of youth development. Young children have external oriented conscience where they are more concerned with the punishment instead of acting on what is morally right (Wenar & Kerig, 2000). During preadolescence, being love-worthy loses its importance and self-judgment and self-criticism becomes a priority. A balance between guilt and self-satisfaction is necessary for healthy development. Too much guilt can result in depression or obsessive-compulsive disorder whereas little guilt or externally oriented conscience is implicated in antisocial children (Wenar & Kerig, 2000). Many of these can co-occur with AD/HD (DSM-IV-TR, 2000).

**Cognitive development.** For normal development, there is a separation of self or what is referred to as the separation of “me” from the “not-me” (Wenar & Kerig, 2000). Anxiety disorders are often based in cognitive distortions of reality as in *omnipotence* or magical thinking that makes one believe that he or she can cause events beyond their control (Wenar & Kerig, 2000). With *egocentrism* the “me” is confused with the “not-me”. Social perspective taking or having the ability to interpret the same situation from different points of views has an impact on social functioning. Three to six year old children seldom have social perspectives. Whereas 7 to 12 year olds can see that others can interpret their behaviors, ideas, and feelings and they can understand the concept of other people’s points of view (Wenar & Kerig, 2000).

In *social problem solving*, it has been proposed that there is a sequence similar to that of the information-processing model (Wenar & Kerig, 2000). Dodge (1986) and Crick & Dodge (1994) determined a sequence as follows: encoding social cues, forming mental representations of and interpreting those cues, searching for possible response and deciding on a particular response from those generated and then acting on that response. Cue interpretation also involves *attribution*, which is an inference about the causes of the behavior (Wenar & Kerig, 2000). For



example, maladaptive or aggressive children tend to view others' behavior as hostile despite it being an accident or benign. These children believe that aggression will effectively yield rewards and increase self-esteem (Quiggle, Garber, Panak, & Dodge, 1992).

**Anxiety.** Freud originated the term "signal anxiety", which is the somewhat painful anticipation of noxious stimulation that warns "Danger ahead" (Wenar & Kerig, 2000). In healthy development, children will take steps to avoid the situation that will bring about the anticipated danger according to Wenar & Kerig (2000). Silverman and Kurtines (1996), states that anxiety is the central point in children's avoidance of parental discipline and the children's motivating factor to forego pleasure.

According to Freud, children can take a multitude of maneuvers to avoid anxiety. This includes repression, reaction formation, projection, and displacement. Repression occurs when one banishes the thought, feelings, or ideas from the consciousness. In reaction formation, thoughts and feelings are the opposite of the actual anxiety-provoking impulse (Wenar & Kerig, 2000). Projection occurs when the anxiety-provoking impulse is repressed and is attributed to others whereas in displacement the impulse is expressed, but expressed toward a different object. Healthy development requires flexibility among defense mechanisms (Wenar & Kerig, 2000). Growth can be jeopardized when extreme or rigid defense mechanisms are limited. Anxiety can also distort thought and reality as well as perpetuate self-defeating defenses.

**Sexual development.** Sexual development entails gender identity and gender roles. *Gender identity* refers to the classification of a boy or a girl and *gender role* refers to the expectations that society has ascribed as appropriate behavior and feelings for each gender (Wenar & Kerig, 2000). Despite the attempts to change rigid gender roles, society still rewards

those who conform and punishes those who do not. According to social learning theorists, parents, caregivers, teachers, and peers reinforce gender-typed behaviors (Wenar & Kerig, 2000).

In Western society, boys are expected to be dominating, aggressive, unsentimental, and unemotional according to Wenar and Kerig (2000). For example, fathers play more vigorously with their male infants. Boys are encouraged to climb and manipulate objects and receive greater physical punishment during the toddler and preschool years (Wenar & Kerig, 2000). Boys are often called “sissies” if they do not conform to the narrowly assigned gender roles. When boys do conform, they are rewarded for doing so. Middle-school aged boys are encouraged to be independent and venture into their surroundings (Wenar & Kerig, 2000). Girls, on the other hand, are expected to be sociable, nurturing, nonaggressive, and emotionally expressive according to Wenar and Kerig (2000). When girls shift to masculine activities or portray “tomboy” behavior, their actions are tolerated and do not receive as many negative reactions as boys do when they portray feminine behaviors (Wenar & Kerig, 2000).

**Aggression.** Wenar and Kerig (2000) define aggression as anger with injurious or destructive behavior as its main goal. In infancy, aggression is displayed with body movements and crying. According to the researchers, between 1 and 4 years old rage is exhibited in the form of explosive outbursts of temper to physical violence. Around the age of 3 ½ years old, kicking, biting, hitting and screaming tend to peak (Wenar & Kerig, 2000). Refusal, arguing, and name-calling increase during 4 and 5 years old. During the middle school years aggression becomes symbolic, intentional, and retaliatory (Hartup, 1996). Bullying, cruelty teasing, bickering, and quarreling is their way of getting even (Wenar & Kerig, 2000). Conscience, when developmentally appropriate, allows children to feel guilt for their behavior. At this stage, aggression can be perpetuated by the ability to hold a grudge. Preadolescence brings back

crying, throwing objects, and stamping feet for a time whereas adolescence is a time when sarcasm, swearing, ridiculing, and humiliating others occurs (Wenar & Kerig, 2000).

Negatively nurtured aggression throughout these stages can lead to pathological disorders like CD and or ODD, which are often co-occurring disorders of AD/HD. Again providing *authoritative* styles of parenting is the most effective in providing structure and warmth (Wenar & Kerig, 2000). On the other hand, neglect and inconsistent parenting breed uncontrolled aggression (Wenar & Kerig, 2000). As previously discussed, some behavior of AD/HD is exhibited by lack of self control that appears as disrespectful or boundary violating actions (DSM-IV-TR, 2007).

**Peer relations.** There are links between peer relations and conduct disorders (Wenar & Kerig, 2000). These connections are important to note because the common co-occurring disorders seen in children with AD/HD include Conduct Disorder (CD) or Oppositional Defiant Disorder (ODD) (Wallis, Russell, & Muenke, 2008). As noted previously, about 20% of children with AD/HD also have a CD and about 30% to 45% have ODD (Beiderman, Newcorn, Sprich, 1991). Since AD/HD has a major impact on relationships, it is important to understand the complexity of *peer relations* and its long term effects on children and more specifically on children with AD/HD. *Peer relations* begin to have the greatest long term effects during middle childhood. Considering the sociometric status of children can help to understand their behavior and how peer-to-peer relations affect each other and how pathological and non-pathological behavior can mimic each other. *Accepted, neglected, rejected, and controversial* make up the sociometric status of children (Bukowski & Cillessen, 1998).

The characteristics of *accepted* or *neglected* children are unlike the characteristics of children with AD/HD, CD, and ODD. The *accepted* children are seen as being resourceful, and

intelligent. These children are emotionally stable, dependable and have the ability to cooperate and be sensitive to others feelings. These characteristics are opposite of the characteristics of CD, which is marked by behavior patterns that break societal norms, or violates the rights of others. The *neglected* children lack social skills and are neither liked nor disliked by their peers. This is unlike the characteristics of children with AD/HD since AD/HD tends to create a great amount of social strain on relationships, which can lead to detesting AD/HD children.

On the other hand, *rejected* and *controversial* children have similar characteristics with children with AD/HD, CD, and/or ODD. The aggressive, distractible, and socially inept children are more likely to dropout and they are more likely to have serious psychological difficulties into adolescence and adulthood. Base on the DSM-IV-TR 2007 criteria for AD/HD, CD, and ODD the characteristics between the *rejected* children and the children with the pathological disorders, show many similarities. Children with CD start fights, use weapons, are truant, steal, and set fires. Children with ODD show patterns of hostility, which consists of arguing with adults, defying requests, deliberately annoying others, lying and bullying, as well as, losing temperament. The *controversial* children may be the class clowns or troublemakers, but they still are able to possess interpersonal skills and charisma that can attract or impress other children. These children may gravitate toward other children who behave similarly and the groups' goals may prescribe their behavior and the interests in which the group's members should conform. This can lead to greater deviant behavior.

Understanding the development and characteristics of non-pathological and pathological development of children may make it easier to understand the characteristics of AD/HD and its complexities. It can also help to determine the best and most appropriate interventions and treatment options for the children with the disorder.

## **AD/HD treatment**

There is a variety of treatment methods used for decreasing symptoms of AD/HD in children. Perhaps the most common is medication management. Other methods include behavioral therapy, family therapy, and parenting classes. The following will discuss the treatment options and their effectiveness in curbing AD/HD symptoms.

**Behavioral therapy.** Studies have shown that parental training programs for families of children with AD/HD have proved beneficial. The most commonly used non-medicinal behavioral treatments for children with AD/HD include parent-training, classroom, academic and peer interventions (Daly, Creed, Xanthopoulos, & Brown, 2007). Behavior modification and strategies to assist in better choices are effective in treating AD/HD (Pelham, 2001).

A study conducted by Songua-Barke (2001), reported that AD/HD children had positive results when parents attended parenting classes. When parents are taught to effectively praise, give clear and effective commands and directions, and learn how to ignore minor misbehaviors then the cycle can be changed, creating a better family environment. According to Pelham, Wheeler, and Chronis (1998), treatments between home and school should be coordinated. Reducing stress at home and at school can be done by collaborating with parents and teachers to create behavior modification techniques (Bernier & Siegel, 1994).

Improved parenting, a reduction in parental and family stress, increased sense of caregiver competence, and increased knowledge of AD/HD has been some results of behavioral parenting classes (Anastopoulos & Shelton, 2001). These classes are generally highly structured (Sanders, Markie-Dadds, & Turner, 2003) and they are aimed at teaching parents how to manage negative behaviors prior to their occurrence, according to Young and Amarasinghe (2010).

Since AD/HD is a chronic disorder, behavioral treatments, like parenting classes, must be consistent and span the long-term (Chronis, Chacko, Fabiano, Wymbs, & Pelham, 2004).

**Pharmacological treatment.** Stimulant treatment has been used for childhood behavioral disorders since 1937 (Bradley, 1937; Pliszka et al., 2004). It is one of the most widely studied medical treatments for AD/HD, and it is the first line treatment for the disorder in children (Jensen, Arnold, & Richters, 1999). The goal of psychotropic medication treatment of children with AD/HD is to decrease the behavioral and emotional problems that are causing the impairment in the children's life (Kollins, Barkley, & DuPaul, 2001).

Conduct, attentiveness, and academic performance have improved with the use of stimulant medication (Goldman et al., 1998). Parent-child interactions, on-task behaviors, and compliance have improved as well. In addition, stimulant medications have decreased fidgeting, finger tapping, and interrupting behaviors that are characteristic of AD/HD. Its use also improves attention during sports and increases peer nomination of social standing (Greenhill et al., 2004). Self-esteem and self-worth have been said to improve when children are on psychostimulant medication. A National Institute of Mental Health (NIMH) study reported that parents and teachers noted a reduction in AD/HD symptoms in children who were taking medication for the disorder (Pelham et al., 2001).

At least four separate psychostimulant medications consistently reduce the core features of AD/HD (Greenhill, Halperin, & Abikoff, 1999; Spencer et al., 1995). Stimulant medications alter norepinephrine and dopamine, which are the neurotransmitters responsible for attention and concentration (Kollins et al., 2001). Because these medications affect the central nervous system (CNS), they can also alter blood pressure, heart rate, respiration, appetite and sleep. Interestingly, more than 75% of the world's stimulants are used in America (Diller, 2000).

Of the four psychotropic stimulants commonly prescribed for the treatment of AD/HD, methylphenidate (Ritalin) is the most prescribed. Evidence shows that it is efficacious with a multitude of symptoms related to the disorder. It has demonstrated benefits in academic productivity and accuracy (Elia, Welsh, Gulotta, & Rapoport, 1993) and with social functioning and peer relations (Barkley & Cunningham, 1979). Methylphenidate (Ritalin) has also shown benefits in parent and teacher behavioral ratings (Barkley et al., 1991). It is also known for curbing aggression and antisocial behavior (Bukstein & Kolko, 1998). Ritalin is the first line medication treatment due to its well-researched efficacy, and wide margin of safety.

Compared to methylphenidate (Ritalin), dextroamphetamine (Dexedrine), pemoline (Cylert), and mixed amphetamine salts (Adderall) have similar results, differing mostly in half life and peak effects (Greenhill et al., 2004). The half-life, peak effects, and use of other medications can have an impact on how the medication produces desired effects (Greenhill et al., 2004). The amount of time it takes for half of the dose to leave the body, which is known as the half-life, can influence how the drug affects the children's behavior and the severity of the side effects. Peak effects are determined by the time it takes for the given dose to produce maximal results. For instance, the peak effects are 1.5 to 2 hours after administration, and the half-life of a standard dose is about 2 to 3 hours (Greenhill et al., 2004). Other medications, including prescription and over the counter medication, as well as, meals and sleep can have an effect on the half-life and peak effects of stimulant medication.

Other psychotropic treatments, such as antidepressants and antihypertensives, are used either when co-occurring disorders are present or when there is no response to stimulant treatment. Like stimulants, antidepressants also work on neurotransmitters and are helpful in treating some of the symptoms of AD/HD (Kollins et al., 2001). Studies have shown

improvements in depressive symptoms, yet there is little evidence that indicates it is beneficial for attention problems. As of 1999, there were 39 published studies on the uses of antihypertensives for the treatment of AD/HD symptoms. Clonidine (Catapres) has been shown to improve behavior problems comparable to the effects of some antidepressants (Connor, Fletcher, & Swanson, 1999). Lastly, guanfacine (Tenex) has been shown to reduce parent child conflicts (Hunt, Arnsten, & Asbell, 1995).

Though antidepressants and antihypertensives have shown improvements in AD/HD symptoms, overall they are minimally studied in the treatment of children (Breggin, 1995; Diller, 2000; National Institute of Mental Health [NIMH], 2008; Sparks & Duncan, 2004). Extreme side effects are possible, which can include liver failure and heart failure if toxic levels are reached. As with most antidepressants, it can take days to see improvements or as much as a month to reach full therapeutic thresholds.

**Multimodal treatments.** Bringing the children, parents, teachers, and professionals together for early and accurate assessment of AD/HD has been beneficial (Barkley, 1997). Research has shown that combining different methods of treatment for AD/HD yields the most reduction in symptoms (Conners et al., 2001; Jensen et al., 2001; Swanson et al., 2001). When medicinal treatment was combined with behavioral treatment, patients improved greatly in more areas than with each separately, according to the study findings of the National Institute of Mental Health (NIMH) Multimodal Treatment of AD/HD (2009).

In a fourteen-month clinical trial of treatment strategies for children with AD/HD (1999), carefully managing behavioral interventions as well as stimulant medication resulted in a decrease in symptoms. The National Institute for Health and Clinical Excellence (NICE) stated



in the AD/HD Clinical Guidelines (2009), that the use of drug treatments should be included with psychological, behavioral, and educational interventions.

Multimodal treatment approaches that involve family-based therapy and behavioral treatment along with medication have proved more effective than behavioral treatment or medication separately (Edwards, 2002). Children had the most success academically and behaviorally with the use of counseling services, parental support, emotional support, and psychotropic medications combined according to Edwards (2002). The Multimodal study applying and utilizing learning techniques in all domains of the child's life, such as school, home, and social settings has been shown to improve the symptoms that cause impairment for children with AD/HD.

In the multimodal study, researchers discovered that parents and teachers preferred the combination of medication and behavioral treatment instead of behavioral treatment alone. Parenting classes in conjunction with medication treatment have been shown to improve the relationship within the family (Bor, Sanders, & Markie-Dadds, 2002; Wells et al., 2000).

**Nontraditional treatments.** Persons opposing stimulant treatment for AD/HD have looked to other forms of treatment that do not create the numerous potential side effects that the traditional treatments do. Some of the nontraditional treatment of AD/HD integrated here includes dietary changes, neurofeedback, as well as, the highly controversial medical marijuana. The following section will discuss these treatments.

**Dietary changes.** Most AD/HD and diet studies were conducted more than 20 years ago, and the results varied. The research was based upon food additives, refined sugars, food allergies/sensitivities, and more recently fatty acid (Schnoll, Burshteyn, & Cea-Aravena, 2003). Many of the studies showed a correlation between food ingredients and AD/HD's cognitive and

behavioral characteristics. Eliminating specific foods may have presented with changes in behavior and cognition. However, due to the difficulty in separating all the eliminated ingredients, the studies proved difficult to ultimately pin point what substance created a greatest change in behavior and cognition according to Schnoll et al., (2003).

Perhaps the most significant dietary changes are those involving essential fatty acids (EFA). Regulation of body functions are dependent upon the hormones that are formed by fatty acids (Schnoll et al., 2003). One study dating back almost 25 years has shown that youths with significantly lower EFA were more likely to have AD/HD than the controls (Mitchell, Aman, Turbott, & Manku, 1987). A separate study by Kane (1999), showed that when AD/HD children who had deficits in the EFA including eicosapenaenoic acid<sup>16</sup> (EPA), and dihomo-gamma-linolenic acid<sup>17</sup> (DHA), omega-3 fatty acids, gamma-linolenic acid (GLA) and arachidonic acid<sup>18</sup> (AA) and were given these EFA supplements their behavior showed significant improvements.

**Neurofeedback.** Neurofeedback (EEG) for the treatment of AD/HD works on the same principal of biofeedback for the treatment of stress relief, which monitors involuntary physiological responses to gain control of them (Ellison, 2009). Neurofeedback therapy for children with AD/HD teaches them to become aware of how their body is responding. When a child is aware of their response, they will learn how to respond and cope with the symptoms. For example, in therapeutic session, electrodes are placed on the scalp. The brain's electrical impulses are sent to a computer that is programmed to provide rewards for the ability to control

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<sup>16</sup> - Is one of several omega-3 fatty acids used by the body

<sup>17</sup> - Is an omega-6 fatty acid is from a family of unsaturated fatty acids that have in common a final carbon-carbon double bond in the  $n-6$  position

<sup>18</sup> - An unsaturated fatty acid,  $C_{20}H_{32}O_2$ , found in animal fats, that is essential in human nutrition and is a precursor in the biosynthesis of some prostaglandins

mental states (Ellison, 2009). If the children remain calm and focused, they may hear chirping birds and see a scene of a grassy meadow.

The National Institute of Mental Health (NIMH) is sponsoring a peer-review study to determine the legitimacy of neurofeedback therapy for the treatment of AD/HD (Ellison, 2009). L. Eugene Arnold, the NIMH project director is recruiting 36 children ages 6 through 12 to participate in the double blind study (Ellison, 2009). The neurofeedback program is based on video game formats. For the first group, the children are told they can make the race cars move faster if they stay calm.

Many parents have seen improvements in their children's grades and their children's ability to follow through on tasks (Ellison, 2009). According to Joel Lubar, a psychologist and past president of the International Society for Neurofeedback stated that the treatment may not result in complete elimination of AD/HD medication, but it has helped to reduce the dosage of psychostimulant medications. One study by Othmer, Kaiser, & Othmer (1995) reported that an increase in I.Q. scores occurred in persons who received neurofeedback treatment. In addition, EEG treatment showed positive results in attention related to the Wechsler Intelligence Scale for Children Revised according to Othmer et al., (1995).

Skeptics, however, claim that the positive results seen by parents were merely placebo effects (Ellison, 2009). Moreover, neurofeedback is an ineffective treatment according to William Pelham from the University of Buffalo. He also calls it "horse therapy". EEG practitioners generally require a brain map that can cost approximately \$900 and they recommended that clients attend at least 40 half-hour treatment sessions after mapping, which can cost about \$100 per session. Since little evidence proves its legitimacy, insurance companies do not cover the therapy. The organization, Children and Adults with AD/HD (CHADD), who

receives about 30% of their funding from pharmaceutical companies, also do not endorse biofeedback treatment (Ellison, 2009).

***Marijuana treatment.*** In California, where they have the lowest prevalence of AD/HD and the lowest percentage of medicated AD/HD children compared to that of the rest of the nation, MediCann physicians are prescribing marijuana for the treatment of a small percentage of youths that have the disorder. Dr. Jean Talleyrand, founder of MediCann, authorizes patients to use medical marijuana (Ellison, 2009). At his clinic approximately fifty teens ages 14 to 18 have been treated for AD/HD. He states that it is safer than methylphenidate (Ritalin), which can have significant side effects such as insomnia, depression, facial tics and stunted growth. Reports from patients and doctors state that marijuana treatment helps to decrease anxiety and anger symptoms that can accompany AD/HD according to Ellison (2009).

Medical marijuana has been legal in California for almost 15 years. Other states have also legalized marijuana for terminal illnesses like cancer and AIDS. California law, however, states that marijuana can be used for any illness in which it provides relief (Ellison, 2009). Despite the flexibility in the law, some physicians who treat patients with marijuana set their restrictions similar to that of Dr. Gene Schoenfeld who prescribes to persons younger than 21 only in situations of life threatening illnesses such as cancer or AIDS according to Ellison (2009).

Contrastingly Stephen Hinshaw, chairman of the psychology department at the University of California Berkley, is animatedly against the use of marijuana for the treatment of AD/HD in children (Ellison, 2009). There are several professionals who agree that the use of marijuana is especially dangerous for youth. According to Dr. Nora D. Volkow, director of the National Institute on Drug Abuse (NIDA), adolescents with AD/HD have an increased risk for

substance abuse issues. Marijuana use would only create a significant detriment to these children because children with AD/HD have a higher rate of substance use (Ellison, 2009).

### **Professionals' knowledge and attitudes**

In addition to social workers, teachers and medical professionals play a role in the lives of children with AD/HD. In fact, teachers are usually the first to suggest or seek assessment for students that present with AD/HD symptoms (Frankenberger, Farmer, Parker, & Cermak, 2001). Social workers, followed by medical professionals, are next in line for recommending treatment and assessing AD/HD symptomatology. The following section will present a summary of the literature about teachers and medical professionals' knowledge and attitudes about AD/HD and its treatment in children.

**Teachers.** Research has shown that teachers initiate referrals in 40% to 77% of childhood AD/HD cases (Frankenberger et al., 2001; Sinder et al., 2003). Several researchers have conducted studies to determine teachers' knowledge about AD/HD and its effects. Little research exists, however, regarding the perception that teachers have about medicating children with AD/HD. The studies about teachers' knowledge of AD/HD all come to similar conclusions.

Jerome et al., (1994), reported that American teachers are knowledgeable about the symptoms of AD/HD, but they have limited knowledge about the treatment methods for youths with the disorder. Sixty-two percent of teachers got the knowledge section correct, whereas 43% scored the general information and treatment section correct. More than half (66%) of the teachers believed that reducing sugar in children's diets is effective in treating AD/HD in children, which has been proven otherwise. Furthermore, Herbert, Crittenden, and Dalrymple (2004) reported similar results in a study conducted on Philadelphia teachers. A study on

teachers in Pennsylvania and New Jersey also revealed that teachers scored better on the knowledge section (70%) than the treatment section (54%).

Ohan, Cormier, Hepp, Visser, and Strain (2008) found that teachers' knowledge about AD/HD influenced the way they reported viewing or perceiving children with AD/HD. For instance, teachers in the study with greater knowledge of AD/HD were more likely to report that they would suggest to parents that they should seek assessment services for their children. The study also found that, overall; teachers believed that medication treatment would not result in a decrease in AD/HD symptoms. Ohan et al. (2008) discovered that teachers with more knowledge compared to those with less knowledge perceived changing the home environment and the children's educational support system as more beneficial.

**Medical professionals.** Controversy still exists among medical professionals. Peter R. Breggin, stated in 1995 that children who are given one-on-one attention and those who are shown strict parental control have a greater propensity to maintain concentration. He believes that children's AD/HD symptoms are not a result of the children's mental health disorder, but are actually the results of the parents not attending to the needs of the children appropriately. Healthy children do well at home, school and in the community (Hoagwood, Jensen, Petti, & Burns, 1996). This is possible for most children, if given an interesting and loving environment according to Breggin (1995).

Some medical professionals have concerns about the self-esteem and identity issues related to pediatrics who take psychopharmaceuticals (Floersch, 2003; Moses & Kirk, 2005; Rappaport & Chubinsky, 2000). Children who take psychotropic medications are likely to feel flawed, helpless, and defective despite the medication having positive effects on behavior according to some researchers. Some research indicates that children who take prescribed

medication struggle with stigmatization, shame, and self-reliance (Moses, 2008). According to Breggin (1995), children who are medicated for mental health related issues often experience hopelessness, and they often feel cheated of a normal healthy mind. Some professionals believe that medicating children hinders their creativity and stifles their enthusiasm. Breggin (1995) believes that deeming children “sick” for displaying difficult behavior results in the children feeling intimidated. Other professionals feel that medicating is extremely intrusive (Breggin, 1995).

When AD/HD is made to be a biological issue rather than a social one, it eliminates the responsibility of parents and educators. This, according to Breggin (1995), leads to the further breakdown of the school and family system. By providing children with proper care and guidance to develop personal responsibility, respect for others, positive social and academic skills, children will thrive and adapt at developmentally appropriate levels. He believes that in many instances parents and teachers are overwhelmed and look to be absolved of the responsibility for the children’s poor behavior. By taking the biomedical approach, it eliminates the incentive for parents and teachers to help the child succeed. Lastly, he states that adults are responsible for children and must heed to their needs.

Joseph Biederman, a strong proponent of the theory that AD/HD is a result of an inherited trait, conducted a large study that revealed that AD/HD occurs 5 to 10 times more in first-degree biological relatives. He and his colleagues at Massachusetts General Hospital found that AD/HD has a strong hereditary predisposition. Biederman (1995) believes that AD/HD can be acquired. Some professionals agree that AD/HD is a result of problems during pregnancy, trauma, or disease (Biederman, 1995). It is believed that neurological damage can result in this pathological condition. Biederman does, however, believe that social environments can

exacerbate the disorder. Biederman (1995) also believes that adult interaction can have an effect on the children's self-esteem, interest in schoolwork, and delinquency. Additional studies have shown that teacher and parental behavior can increase or lessen the severity of AD/HD.

### **Prominent research on social workers and AD/HD**

Little research has been conducted on social workers' knowledge and attitudes about treating children with AD/HD. The most closely related study focused on *Social Workers' Knowledge and Perceptions of Attention Deficit Disorder in Children*. This study by, David Pentecost and Neil Wood (2002), performed the study on social workers in England. Another study was conducted by Tally Moses and Stuart A. Kirk (2006) titled *Social Workers' Perspectives and Attitudes about Medication Treatment of Youths*. In a separate study, Tally Moses (2008) explored *Social Workers' Perspectives on the Psychosocial Effects of Drug Treatment in Youth*. The following will discuss the studies in further detail.

**Pentecost and Wood.** Pentecost and Wood (2002) conducted a survey study about, *Knowledge and Perceptions of Child-Care Social Workers about AD/HD*. In southeast England, questionnaires were given to 440 social work practitioners who work with children. They had a response rate of 40 % ( $n = 174$ ) (Pentecost & Wood, 2002). The researchers sought to explore social workers' knowledge of the core symptoms and signs of AD/HD and their views on management and intervention of AD/HD. The study also sought to determine social workers' perceptions of child and family support given. Moreover, the study looked at the social workers' awareness of community support agencies for the treatment of AD/HD.

Pentecost and Wood (2002) selected childcare social work departments, child disability and family placement agencies, and London-based Guardian *ad Litem* panel's membership list. The questionnaire was composed of a list of symptoms, case scenarios, and a list of



interventions. The social workers were asked to indicate awareness of support services for AD/HD.

The study conducted by Pentecost and Wood (2002), had a 40.5% response rate with 174 total completed questionnaires. Of the completed questionnaires, 75% ( $n = 130$ ) respondents were women and 22% ( $n = 38$ ) were male. Six of the respondents did not indicate either male or female. The social workers' years of experience ranged from one year to 25 years, with the mean of 10.3 years ( $SD = 9.1$ yr.). For the guardian *ad litem* workers, their length of experience was 20.1 years compared to that of non-guardians at 6.4 years.

The respondents were asked to identify behavioral characteristics of AD/HD in children. Most commonly identified characteristic were 'lack of concentration' (> 75%), 'taking risks without thinking' (> 65%), and 'on the go all the time' (> 65%). Less than half of the social workers identified 'attention seeking behavior' (< 50%) and 'aggression toward others' (< 25%). Annoying habits, learning difficulties, food sensitivity, checking things repeatedly, and fascination with fire were identified as indicators of AD/HD by less than 10% of the sample ( $n = 174$ ).

In the Pentecost and Wood study, the social workers were given case scenarios describing the behaviors of three seven-year-old boys. Two of the boys, Darren and Peter, presented without signs of AD/HD, but with learning difficulties and behavioral disturbances. The third boy, Terry, presented with signs that are characteristic of AD/HD symptomatology. Slightly over three-quarters ( $n = 32$ ) of the social workers correctly identified Terry as having symptomatology related to AD/HD. A small number ( $n = 5$ ) of social workers incorrectly identified Terry as not having the disorder and the remaining ( $n = 35$ ) were not sure if Terry had the disorder. For Darren, slightly less than a quarter ( $n = 127$ ) of the social workers correctly

identified him as not having AD/HD with only ( $n = 8$ ) identifying him as having AD/HD and the remaining ( $n = 36$ ) were not sure. Lastly, the greatest number ( $n = 142$ ) of social workers correctly identified Peter as not having AD/HD with a small number ( $n = 5$ ) identifying him incorrectly. The remaining ( $n = 23$ ) social workers were unsure whether the symptomatology was that of AD/HD.

In this study, social worker respondents were asked to indicate their preferences in the treatment of AD/HD. Nine different types of interventions were provided. The greatest number ( $n = 162$ ) of social workers agreed that ‘parent guidance’ was appropriate treatment. A fewer number ( $n = 158$ ) of social workers agreed that ‘parent training’ was appropriate treatment. Exactly half ( $n = 87$ ) of the social work respondents agreed that ‘social skills training’ was appropriate treatment for children with AD/HD and a smaller portion ( $n = 49$ ) strongly agreed. Less than half ( $n = 68$ ) agreed that ‘stimulant medication’ was an appropriate intervention treatment for children with AD/HD. Over a third ( $n = 63$ ) of respondents were unsure of ‘stimulant medication’ being an appropriate treatment for children with AD/HD. Less than half ( $n = 71$ ) were unsure that ‘family financial support’ was an appropriate intervention for children with AD/HD. Over a third ( $n = 67$ ) agreed that family financial support was an appropriate intervention.

Men and women provided significantly different responses to the identification of key features of AD/HD, and their views on interventions. A quarter ( $n = 33$ ) of the women incorrectly identified ‘aggression toward others’ as a key feature of AD/HD compared to a tenth ( $n = 4$ ) of the male respondents. Almost a quarter ( $n = 8$ ) of the men, compared to less than a tenth ( $n = 9$ ) of the women, incorrectly identified ‘annoying habits’ as characteristic of AD/HD. Men ( $n = 19$ ) were less likely than women ( $n = 111$ ) to correctly identify Terry’s behavior as

characteristic of AD/HD. Just over a quarter ( $n = 36$ ) of the women were more likely to be unsure that Peter had AD/HD compared to slightly less than a tenth ( $n = 3$ ) of the men. Almost half ( $n = 18$ ) of the men were unsure that Darren had AD/HD whereas slightly less than one-tenth ( $n = 12$ ) of the women were unsure.

Views on intervention also differed among men and women. More women ( $n = 20$ ) than men ( $n = 1$ ) disagreed with the use of stimulant medication as an appropriate intervention in the treatment of AD/HD. Almost half ( $n = 55$ ) of the women and a quarter ( $n = 10$ ) of the men agreed that child psychotherapy was an appropriate treatment. Women agreed more with parent guidance ( $n = 73$ ) and social skills training ( $n = 77$ ) for the treatment of AD/HD. Close to a third ( $n = 12$ ) of the males agreed with parent guidance. Just over a quarter ( $n = 10$ ) of the males agreed that social skills' training was appropriate.

Differences in knowledge and perceptions were the most significant among the Guardian *ad Litem* status and years of post-qualifying experience. Respondents having been qualified for 6 to 10 years ( $n = 31$ ) or longer ( $n = 60$ ) had the highest rates of correctly identifying Terry's behavior as characteristic of AD/HD. Newly qualified ( $n = 22$ ) and those who had qualified in the past five years ( $n = 21$ ) correctly identified Terry as having behavior characteristics of AD/HD. Just over one-tenth ( $n = 17$ ) of the respondents with more experience were less likely than those who were more recently qualified, slightly under a quarter ( $n = 12$ ), to endorse family therapy. Close to a quarter ( $n = 8$ ) of the social workers who qualified within the last five years endorsed family therapy. About one-third ( $n = 11$ ) of the recently qualified social workers and one-third ( $n = 11$ ) of the one to five year qualified social work groups believed it was extremely important to refer to other agencies for support and management. On the other hand, social

workers who had 6 to 10 years ( $n = 6$ ) of post-qualifying experience, as well as the longer years of experience ( $n = 16$ ), felt referrals were appropriate.

Pentecost and Wood (2002) found that the overall social workers were knowledgeable about the key symptoms of AD/HD. However, they differed mostly about intervention choices. They found that the social work experience level had the largest impact on the knowledge and treatment preferences of AD/HD. The study also found that a majority of the social workers felt that targeting parents rather than using stimulant medication was an appropriate treatment for AD/HD. More experienced social workers were more likely to favor consultation and collaboration of professionals outside their disciplines than newly qualified social workers were. In addition, more experienced social workers were more likely than newly qualified social workers are to have accurate knowledge about AD/HD.

**Moses and Kirk.** Moses and Kirk (2006) conducted a study on, *Social Workers' Attitudes about Psychotropic Drug Treatment in Youths*. The cross-sectional mail survey targeted social workers' experiences in treating adolescents who were prescribed psychotropic medication. The sampling frame consisted of persons with MSW degrees, practicing social workers in the field of mental health, and the school of social work, as well as, social workers whose primary function was clinical or direct practice. In the fall of 2002, a 12-page questionnaire was sent to 2,000 social workers who were members of the National Association of Social Workers (NASW). The researchers received 260 nonparticipation post cards, 16 questionnaires that were undeliverable and 563 unusable surveys. The response rate was 32.7% ( $n = 654$ ).

The Moses and Kirk (2006) survey consisted of two parts, which included a demographics section, as well as, a section about the general attitudes regarding psychotropic

treatments for youth. Questions pertaining to the social workers' professional experiences with psychopharmacology and their personal information were included in the first portion. The second portion included 14 judgment questions about the importance of using psychotropic medication when treating youth. A scale was developed to measure the social workers' attitudes and the appropriateness of psychotropic use in mental health practice.

Three components were used for analysis, which included *Medication's Harms*, *Medication Benefits*, and *Medication and Other Treatments* that was thrown out for not meeting internal consistency. Medication harms included six statements that reflect the perceptions of medications' harms. In this section, the average was taken on a scale of 1 to 4. A higher score showed that a greater number of respondents viewed that medicating youth sends the wrong message and can be harmful to youth's well-being. Medication benefits consisted of five items, which measured the acceptance of psychotropic medication as necessary and beneficial for the treatment of children with mental health issues.

The demographic characteristics varied among the sample. The social workers worked in the following: More than one field (20%), adult mental health (65%), child mental health (24%) and school social work (16%). The average years of experience post-masters were 20 years and the primary theoretical orientation included cognitive-behavioral (50%), psychodynamic (44%), and family systems (32%). Of the professionals' caseload, 46% of the patients took psychotropic medication. Most (88%) reported having varying forms of training or education in psychopharmacology. The greatest source of learning came from self-teaching (81%), followed by workshops (74%), in-service (69%), and seminars (59%).

Attitudes varied among social work respondents in relation to the harms and effects of medication treatment for youth. Based on a four-point Likert scale, most disagreed that

psychopharmacology was harmful for youth ( $M = 2.2$ ). Additional statements discovered that most respondents agreed that medication distracts from the larger social problem and that parental inadequacy is often the underlying problem. Most respondents disagreed that medication sends the wrong message and that medication is used to control children. Most of the respondents agreed (81%) that medication is a necessary part of treatment for many disorders and more than half (60%) agreed that medication outweighs the risks. Slightly more than half (55%) believed that medication provides rapid improvement and just under a tenth (9%) agreed that medication is the best way to get children's behavior under control.

The Moses and Kirk (2006) study found gender, knowledge, training, practice field, and theoretical orientation were mostly associated with social workers' attitudes. Males with greater experience in clinical practice or in school social work and had worked with a greater number of medicated clients, were more likely to view medication as beneficial. Respondents who indicated having work-related in-service training about psychopharmacology rated themselves more knowledgeable in the subject matter and they were more likely to perceive medication treatment as beneficial. Older social workers were more likely to perceive that psychopharmaceuticals caused harm, as well as, social workers with existential-humanistic theoretical orientation. Lastly, social workers who did not report physician collaboration regarding medication treatment were more likely to perceive medications as harmful.

Overall, the study indicated that social workers are not completely against the use of medication for children's mental health disorders. The social workers sided with the notion that medication should be used in severe cases and along with other forms of treatment. In the study by Moses and Kirk (2006), some participants indicated the difficulty in responding to the statements because they were not given the disorder type or severity of the cases. Social workers

were more likely to be against medication as the first line treatment except in the cases of the severely mentally ill.

Moses and Kirk (2006) conclude that additional research needs to be done to determine how the views of professional social workers influence treatment. They also believe that greater education is needed in the field of medication treatment, so that views may be balanced and avoidance of false perception of medication benefits can be eliminated. An additional concern of the researchers is the influence that attitudes have on the outcomes of drug treatment. Moses and Kirk (2006) believe that social workers must remain well informed to determine medication's true effectiveness.

**Moses.** Moses (2008) conducted research entitled, *The "Other" Effects of Psychotropic Medication: Social Workers' Perspectives on the Psychosocial Effects of Medication Treatment on Adolescent Clients*. This study used data collected from a mail survey that was sent to close to 6,000 social work members of the NASW. The nationally randomized sample was made up of 2,000 members. The sample had to have Master of Social Work (MSW) degreed professionals; the participants had to practice in mental health or school social work and report their primary function in clinical or direct practice. The target was to obtain a sample of experienced social workers who worked primarily with youths who were also receiving psychiatric treatment. The survey was conducted in three waves from September 2002 to December 2002.

The survey consisted of two portions that asked about personal and demographic information as well as client related questions. The first section asked about their knowledge and training in psychopharmacology and the percentage of their caseloads involving medication treatment. Questions about their attitudes toward psychotropic treatment of youth were also asked along with questions about their experience with treating adolescents. The second portion

asked the social workers to select a client with whom they had worked who was between the ages of 12 and 20. This client should have had medication prescribed and should have taken psychopharmaceuticals in the treatment of psychological or behavioral problems for at least two months and should not suffer primarily from a psychotic disorder. Social workers were asked to report if the client received psychosocial and/or medication treatment and their perceptions on the impact of medication in the youth. Furthermore, they were asked to indicate the youth and parents' receptivity to psychopharmacology.

The study measured perceived psychosocial effects of medication on adolescents from the clinician's perspective. Eight different constructs were compiled to make up the psychosocial effects of medication, which included optimism, self-esteem, self-efficacy, normalization, stigma, identity, autonomy, and interpersonal relations. Several items were dropped after piloting, which brought the Medication Psychosocial Effects on Adolescent Scale (MPEAS) to 16 items. A four point Likert scale was used to measure the constructs.

Analyses of five categories were used to explore the client and treatment related factors perceived by social workers. The section included client demographics, clinical characteristics, readiness and support factors, medication treatment characteristics and psychosocial treatment characteristics. The client demographics were composed of questions pertaining to age, gender, race and family structure, as well as, socioeconomic status. Clients' clinical characteristics were related to the type and severity of the illness. For example, social workers were asked to indicate the client's primary diagnosis and comorbidity along with global assessment of functioning based on DSM IV criteria. The section was also comprised of three factors related to perceived causes of the disorder. This included neurobiology/heritability, abuse and trauma, or economic and environmental deficits.



Third, social workers were asked to indicate their perceptions of clients' interpersonal support and individual readiness. This was measured by parents' concerns about drug treatment, quality of client-parent relationship, quality of clients' peer relations, clients' level of cognitive competence, and clients' involvement in the decision to start medication treatment. Length of time on medication, type of medication, polypharmacology, and first time on medication, side effects, and effectiveness of medication composed the medication treatment characteristics section. Lastly, respondents were asked to describe the treatment provided to the clients, which included length of social work treatments, quality of social worker-client relationship, quality of social worker-parent relationship, and any direct contact between social worker and prescribing physician.

According to Moses (2008), the social workers' characteristics can contribute to their perceptions of the effects of medication on their clients. Age, race, and gender were examined along with years' post MSW. The social workers were asked to indicate primary theoretical orientation and whether or not they had training or education in psychopharmacology. They were asked to rate their level of knowledge of psychotropic medication from lower, moderate to good. Respondents were asked to indicate their attitudes toward the use of psychopharmacology with youth based on two subscales (Moses & Kirk, 2006). Self reported level of knowledge and social workers' attitudes toward psychopharmacology were significant correlates and were controlled.

The overall response rate of the study was 28.3%. Nonparticipation ( $n = 260$ ) postcards were returned and 563 surveys were returned. Of the total returned 395 provided information related to the case. Middle aged ( $M = 50.9$  range 28 - 74) Caucasian (95.7%) women (78.4%) were the average respondents. Years of clinical practice ranged from two to 40 years with the

average being 20 years. The largest theoretical orientation was cognitive-behavioral (53.3%), followed by psychodynamic (40.1%), and family systems (35.7%). This was followed by problem solving (23.7%), and other (14.4%). Most (89.4%) of the social work respondents had received psychopharmacology training or education and they rated their level of knowledge as moderate ( $M = 2.2$ ;  $SD = .57$ ).

The characteristics of cases and treatment that the respondents selected contained a majority of Caucasian (81.5%) females (58%) with an average age of 15.7 years old. Most (78%) lived with one biological parent, and came from middle-class or higher (63.5%). The average GAF score was 49.6 ( $SD = 14$ ) indicating severe to moderate impairment in social, school, or occupational functioning. Most (60.3%) had a depressive disorder followed by anxiety disorder (26.8%), and AD/HD (22.3%). Affective disorders and disruptive disorders made up almost half (43.3%) of the reported cases. Disruptive disorders included; CD, ODD, AD/HD, or alcohol and other drugs use (AODA). Psychopharmaceuticals prescribed most included antidepressants (80%), followed by stimulants (24.3%), and mood stabilizers (22%). More than half (65.1%) of the social workers noted that adverse effects of medication occurred in their clients. Social workers (80%) also noted that they had communication with the physician who prescribed the medication for their client.

The results of social worker's perceptions about medication's psychosocial effects on adolescent clients revealed that social workers agree that medication has benefits. The majority of social workers agreed with the statement that state of mind and social relationships along with social skills benefited from medication treatment. On the other hand, social workers disagreed that psychopharmaceuticals had negative effects such as stigma, dependence on others, and lower efficacy on adolescent clients.

The social work respondents who reported that their clients had a diagnosis of AD/HD or anxiety disorder were more likely to perceive clients as benefiting from psychotropic medication. Social workers who perceived the problems experienced by their clients as neurological or biological were more likely to view medication treatment as beneficial. Social workers who perceived their clients' problems as caused by trauma, family deficits, or environmental issues such as poverty were more likely to believe that medication treatment was psychosocially harmful or less beneficial. Nearly significant ( $p = .07$ ) was social workers agreement that clients who received stimulant medication were more likely to benefit from medication treatment. Most of the psychosocial harms noted were a result of tremors, indigestion, headaches, and weight gain experienced from the adverse side effects of the medication.

Family support, client readiness, and positive working alliances were significantly associated with the client benefiting from medication treatment. Youth with good family support and peer relationships were more likely to experience psychosocial benefits as perceived by the respondents. Youth who were involved in their treatment decisions were perceived to benefit psychosocially from medication as well. Social workers who had positive collaboration with clients and their families had a greater incidence of reported benefits with psychotropic medication treatment. Psychosocial harms were reportedly more common among clients whose parents were more concerned about medication's harms.

Moses (2008) discussed the need for additional research on medication treatment and youth. He believes it is important for practitioners to understand youth's responses and the effects of medication on them. He also states that it is important for clinicians to provide valid data about children's treatment and the affects of medication treatment with concurrent

psychosocial treatments. He believes that longitudinal studies need to be conducted to determine the meta-effects of mediation treatment in children through their developmental stages.

### **Goals of the current study**

The goal of my research is to gain a greater understanding of how social work professionals and social work students learn about AD/HD and how they formulate their views on the disorder and its treatment. Additionally, my study seeks to establish a foundation from which social workers' attitudes toward the treatment, etiology of AD/HD, and perceptions about the disorder are formulated. Conducting research on social workers and AD/HD will help bring awareness to the disorder and the critical role that social workers have in its treatment. Bringing together the current literature, as well as, my original research will help to break down the myths about the disorder and highlight social workers' roles in its treatment.

## Chapter 2 Methods

### Recruitment

After receiving the Wayne State University Human Investigation Committee (HIC) approval (Appendix A), the flyers (Appendix B - E) were placed throughout Wayne State University School of Social Work offices and social work classrooms. The flyers were also distributed using the School of Social Work email listserv. Additional respondents were solicited through a Facebook Group Page (Appendix F), as well as, through a paid print advertisement (Appendix G) in the NASW Michigan Chapter *Connections Newsletter*, which was printed in the January 2010 issue. Lastly, snowball sampling was used. Respondents were encouraged to pass the survey link along to other social work professionals and social work students who might be interested in participating in the study research.

Wayne State University School of Social Work students and alumni had access to recruitment flyers through location postings and through the School of Social Work emails. Within the School of Social Work, flyers were distributed near the entrances and additional flyers were placed on the bulletin boards near the classrooms. Persons on the Wayne State University School of Social Work Alumni Group listserv, the Field Instructor listserv, and the MSW student listserv also received emails containing the recruitment flyers.

The Facebook Group Page was entitled “Looking for Social Workers to Participate in Survey Research”. Weekly updates and posts were sent to members to encourage social work professionals and social work students to participate in the online survey research and to recruit their colleagues and classmates. In addition, weekly recruitments posts were placed on the Facebook NASW Official Group Page. The postings provided the same information that was given in the flyers.

## Survey instrument

The survey instrument was derived from the diagnostic criteria, the review of the literature, and from popular opinions about AD/HD. Other questions stemmed from personal conversations with persons who have strong opinions about the disorder's causes and treatments. Over several decades, the topic of AD/HD and its existence has resulted in heated debates. I was interested in determining if professional social workers and social work students also held biased beliefs about the disorder. Having sound and reputable information is an important factor in determining the validity of an argument. Therefore, it was important for me to understand the details of AD/HD and its treatments. It was equally important for me to determine what influenced social work professionals and social work students in forming their attitudes about the disorder, as well as, their level of knowledge related to these attitudes. Furthermore, I constructed knowledge and attitude questions to pinpoint my areas of interest and speculation related to common myths about AD/HD. For instance, popular media and news broadcasts often portray parents of AD/HD children as controlling, exploitive, or even as addicts. I sought to determine if the attitudes displayed by popular media were similar to that of social work professionals and social work students.

The survey was comprised of two parts, including questions about the respondents' knowledge and attitudes about AD/HD, and their demographic information. The knowledge and attitude statements included a four point Likert scale. This section provided response choices as strongly agree (1), agree (2), disagree (3), and strongly disagree (4). The four groups were later combined into two groups for easier analysis. These groups were comprised of agree (1) and disagree (2). The entire survey took respondents about 15 minutes to complete.

The questions involved fact-based, as well as, opinion-based questions. The knowledge-statements were based on information related to the diagnosis, symptomatology, and various treatments for AD/HD. The attitude statements measured respondents' agreement or disagreement. Questions about how they gained their knowledge about AD/HD and demographic questions were also asked.

### **Procedure**

Social work professionals and social work students who inquired about the study were sent an email response, which included an information sheet, as well as, a link to the online survey. The survey was created using Zoomerang Online Survey Software Tool. Interested persons could insert the link into their web browser, which then linked them to the Zoomerang survey site. After completion of the survey, the respondents had the opportunity to enter into the drawing for the Barnes and Noble Gift Card.

### **Data analysis**

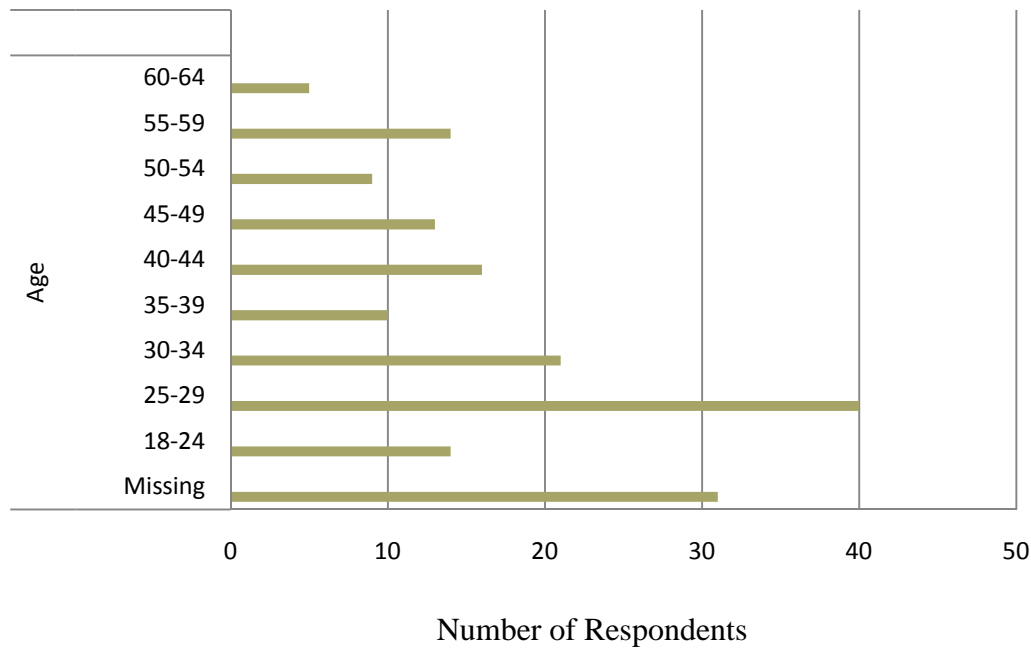
Analysis was conducted using the Predictive Analytics SoftWare (PASW) Statistics GradPack 18 for Windows. Frequencies, T-Test, Cross-tabulation, Bivariate analysis, descriptive, multiple regressions, and ANOVA were used to analyzed the survey data.

## Chapter 3 Results

### Demographics

**Gender, age and race.** There were 143 completed surveys. Less than one-tenth ( $n = 11$ ) of the completed surveys were from men and almost all ( $n = 132$ ) were from women. The age of the respondents ranged from 18 years of age to 64 years of age (see Figure 1). The majority of the respondents, were European American/Caucasian ( $n = 118$ ) and African American ( $n = 18$ ). The remaining (4.0%) respondents were included in the “other” category, which included Latino, Native Indian or Alaska Native, and bi-racial or multi-racial.

**Figure 1.** Number of Respondents by Age



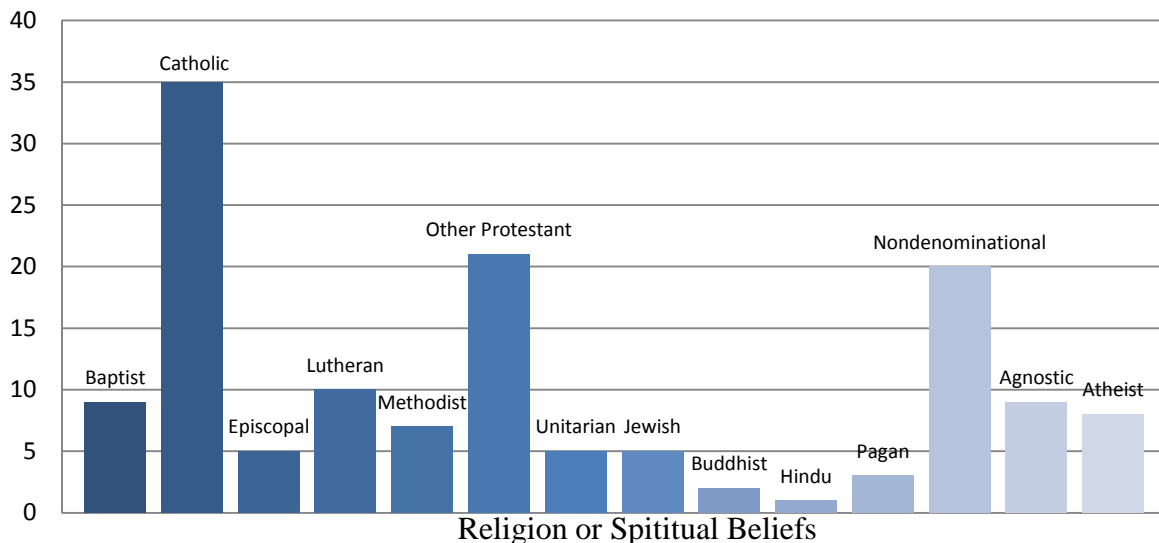
*Figure 1.* Social work professionals and social work students ( $N = 173$ ) were asked to indicate their age based upon the age brackets provided. This indicates the ages of the respondents who answered the question, as well as, those who either did not complete the survey or chose not to answer.



**Area of residence.** More than half ( $n = 96$ ) of the respondents indicated that they lived in a suburban area, whereas less than a quarter ( $n = 28$ ) stated that they lived in an urban area. The remaining respondents ( $n = 18$ ) were residing in a rural location.

**Religion or spiritual beliefs.** Religion and spiritual beliefs spanned over 14 different categories. The highest number of respondents in a religious group was Catholic, followed by Protestants and those claiming no denominational affiliation. The graph below displays an all-inclusive look at the religion and or spiritual beliefs of the study respondents (see Figure 2).

**Figure 2.** Number of Respondents by Religion or Spiritual Beliefs



*Figure 2.* Respondents were asked to indicate their religion or spiritual preference. They could choose from a list that provided religions, spiritual preferences, or they could enter their own response in the ‘other’ category.

**Marital status and family size.** Almost half ( $n = 67$ ) of the respondents had never been married, and slightly over a third ( $n = 52$ ) were currently married. Divorced respondents ( $n = 19$ ) and widowed respondents ( $n = 3$ ) were combined to make up previously married category ( $n = 22$ ). Slightly more than half ( $n = 73$ ) of the participants had no children. Out of the remaining

respondents, the greatest number of respondents had two children ( $n = 33$ ), followed by less than a quarter ( $n = 20$ ) who had one child. Respondents having three ( $n = 10$ ), four ( $n = 3$ ), and five ( $n = 1$ ) were combined into a single group that made up approximately 10% of the completed surveys.

**Years working as a social worker and field population.** Just over one-third ( $n = 66$ ) of the respondents indicated that they had worked as a social worker two years or less, followed by persons who had worked as a social worker for 3 to 6 years ( $n = 27$ ) and those working 10 years or more made up just over a quarter ( $n = 49$ ). Slightly less than a quarter ( $n = 36$ ) of the respondents indicated that they currently work with children, and even less ( $n = 21$ ) indicated that they work with adults. Slightly over one-third ( $n = 51$ ) of the survey participants indicated that they work with both children and adults. Those currently not working and those who did not indicate their field populations were combined into one group ( $n = 34$ ). Four surveys had incomplete or missing data and were not included in the analysis.

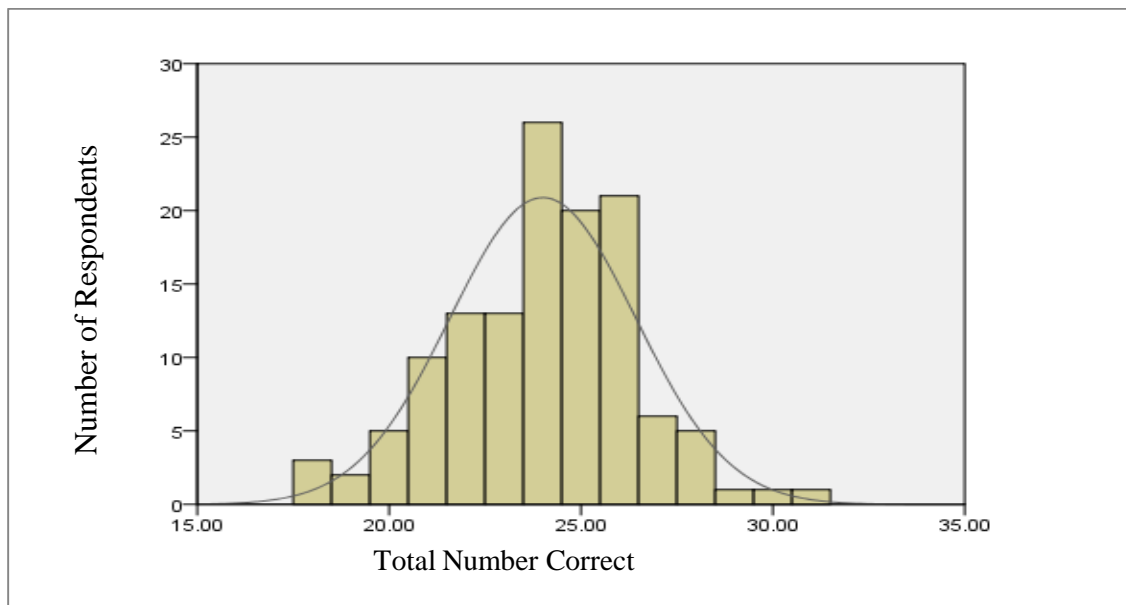
**Familiarity and where respondents learned about AD/HD.** Respondents were asked a series of questions related to their personal experience and familiarity with AD/HD. The respondents were asked; *Do you or someone you know have Attention Deficit Disorder?* Over three-quarters indicated, “yes” ( $n = 115$ ), and less than a quarter ( $n = 27$ ) indicated that they did not. A few ( $n = 3$ ) respondents indicated that they “prefer not to say”. When asked, *How have you learned about Attention Deficit Disorder*, participants indicated that they had learned about AD/HD from a variety of sources which include: college/university classes ( $n = 115$ ), CEU/workshops ( $n = 62$ ), journal articles ( $n = 85$ ), Internet/websites ( $n = 79$ ), books/texts ( $n = 90$ ), television ( $n = 57$ ), colleagues ( $n = 93$ ), family and friends ( $n = 93$ ), and clients ( $n = 28$ ).

Most ( $n = 99$ ) of respondents stated that they were familiar with the DSM-IV criteria for children with Attention Deficit Disorder.

### Knowledge

The *Knowledge Scale* (Appendix H) consists of 32 questions based on generalist knowledge, DSM-IV-TR criteria for AD/HD, popular research, and common misconceptions about the disorder. Respondents ( $N = 127$ ) who completed all 32 knowledge questions were included in the analysis with the mean number correct of 24 ( $SD = 2.43$ ) (See Figure 3).

**Figure 3.** Number of Knowledge Questions Correct



*Figure 3.* Number of knowledge questions correct by number of respondents

**Knowledge questions correct by gender.** The number of women ( $n = 114$ ) greatly outnumbered the men ( $n = 9$ ). A larger sample would provide a greater number of respondents from which a true mean could be calculated. Despite this, I found the results interesting and I wanted to share them. When gender was analyzed with total number of knowledge questions correct, it showed that men and women scored slightly different. Men had a mean score of 22.67 ( $SD = 2.55$ ) whereas women had a mean score of 24.12 ( $SD = 2.41$ ) (Appendix I).

**Knowledge questions correct by age.** The respondents who were between ages 18 to 29 ( $n = 51$ ) had the lowest mean score of 23.80 ( $SD = 2.66$ ) (Appendix J). In the age group 30 to 39 ( $n = 25$ ) the mean score was 24.16 ( $SD = 2.69$ ). Respondents between the ages of 40 and 49 ( $n = 23$ ) had a mean score of 24.52 ( $SD = 2.23$ ). Lastly, respondents between the ages of 50 and 64 ( $n = 24$ ) had a mean score of 23.83 ( $SD = 1.88$ ). Further, analysis revealed no significant differences between age groups regarding the total number of knowledge questions correct.

**Knowledge questions correct by race.** European Americans/Caucasians ( $n = 106$ ) scored on average 24.06 ( $SD = 2.41$ ) (Appendix K). African Americans/Blacks' ( $n = 12$ ) had a mean score of 23.25 ( $SD = 2.80$ ). The remaining racial/ethnic groups were combined into an 'other' category, which includes Hispanics' ( $n = 3$ ) who scored 22, 24, and 26 correct, multiracial ( $n = 1$ ) and Arabic ( $n = 1$ ) respondents who scored 25 and 28 respectively. The mean score for the 'other' category was 25.00 ( $SD = 2.24$ ). However, because there were only five respondents in this group the mean cannot be deemed meaningful though interesting nonetheless.

**Knowledge questions correct by area of residence.** Respondents were given the choice to indicate their area of residence as urban ( $n = 23$ ), suburban ( $n = 85$ ), or rural ( $n = 14$ ). Respondents who indicate that they live in an urban area scored a mean of 24.13 ( $SD = 2.53$ ). Suburban dwellers had a mean score of 23.98 ( $SD = 2.46$ ). Lastly, rural dwellers had the highest mean score of 24.21 ( $SD = 2.36$ ).

**Knowledge questions correct by religion.** The 14 religion categories were combined into four groups for purpose of analysis. The Christian category included Baptist, Catholic, Episcopal, Lutheran, Methodist, other Protestant, Pentecostal/Apostolic, orthodox Christian, and Presbyterian. The 'Other Non-Christian' category included Unitarian, Jewish, Buddhist, Hindu, Pagan, and Native American. Agnostic and Atheist were placed into a group as well as the

Nondenominational and Spiritual was combined in a separate grouping. Most groups had similar means scores and varied only slightly. The Christian category had a mean score of 23.97 ( $SD = 2.58$ ) and the 'Other Non-Christian' category had a mean score of 24.11 ( $SD = 2.26$ ). Those in the Nondenominational/Spiritual category had the highest mean score of 24.27 ( $SD = 2.32$ ) and Atheists/Agnostics had the lowest mean score of 23.72 ( $SD = 2.47$ ).

**Knowledge questions correct by marital status and family size.** Respondents were asked to indicate marital status and given the choice of never married ( $n = 46$ ), married ( $n = 58$ ), divorced ( $n = 16$ ), and widowed ( $n = 2$ ). Respondents who indicated never married had a mean score of 24.09 ( $SD = 2.70$ ). Those married had the lowest mean score of 23.95 ( $SD = 2.45$ ). Divorced respondents had the highest mean score of 24.13 ( $SD = 1.89$ ). With a small number of respondents, making up the widowed category a mean could not be deemed meaningful.

The survey takers were asked to indicate number of children to assess family size. The respondents with no children ( $n = 64$ ) had a mean score of 23.97 ( $SD = 2.63$ ). Those with one child ( $n = 19$ ) had the second to the highest mean score of 24.16 ( $SD = 1.95$ ). Respondents who indicated having two children ( $n = 25$ ) had the lowest mean score of 23.72 ( $SD = 2.53$ ). Respondents who indicated having three or more children ( $n = 12$ ) were combined for analysis purposes. This combined group had the highest mean score of 24.58 ( $SD = 2.23$ ).

**Knowledge questions correct by years working as a social worker & field population.** The total number of years working as a social worker was combined into three groups for a more meaningful analysis. Social work students, social work interns, and respondents working two years or less were combined into one group. This became the largest group ( $n = 57$ ) that had the lowest mean score of 23.88 ( $SD = 2.52$ ). The following group consisted of those having worked 3 to 9 years as a social worker. This was the second largest group ( $n = 42$ ) that had a mean score

of 24.10 ( $SD = 2.51$ ). The highest mean score was 24.30 ( $SD = 2.20$ ) by the respondents who have worked ten or more years as a social worker. No significant results were found between number of years working as a social worker and number of knowledge questions correct.

Respondents working only with children ( $n = 32$ ) had a total number of knowledge questions correct ranging from 19 to 31 correct with a mean score of 23.94 ( $SD = 2.46$ ) (Appendix L). Persons working only with adults ( $n = 18$ ) had a mean score of 24.06 ( $SD = 1.76$ ). Social workers working with both children and adults ( $n = 41$ ) had a mean of 24.07 ( $SD = 2.77$ ). Persons who did not indicate ( $n = 24$ ) the populations with whom they currently work had a mean of 24.17 ( $SD = 2.24$ ). Students and persons not working were combined ( $n = 7$ ) into one group with a mean of 24.15 ( $SD = 2.91$ ). No significant relationships were present between field population and number of knowledge questions correct.

### **Attitudes**

The attitude statements (Appendix M) were first analyzed independently of each other in conjunction with the demographic data. The statements were then compiled into two different scales relating to medication and parenting. The scales were constructed in hopes to find additional correlations and interesting findings.

**Medication scale.** The four *Medication Scale* questions were coded as follows: *Attention Deficit Disorder in children requires medication* was coded (1) agree and (0) disagree; *Psychostimulants should only be used in severe cases of Attention Deficit Disorder* was coded (0) agree and (1) for disagree; *Controlling children with ADD is the main goal in medicating children with ADD* (1) agree and (0) disagree; *The pharmaceutical companies are responsible for the increase in ADHD diagnosis* (1) disagree and (0) agree. All the respondents' individual scores were summed. The new variable was created as *Medication Scale*. These new variable

scores were analyzed based upon a zero to four point scale. Zero (0) indicates *non-supportive* of medication, one (1) indicates *slightly supportive*, two (2) indicates *somewhat supportive*, three (3) indicates *supportive* and four (4) indicates *highly supportive*.

The *Medication Scale* yielded 157 complete responses. Less than a quarter ( $n = 23$ ) scored zero, which indicated non-supportive attitudes toward medication. Less than half ( $n = 68$ ) scored one point indicating that they were slightly supportive of medication. More than a quarter ( $n = 50$ ) had a score of two showing that they were somewhat supportive of medication. Under a quarter had three points ( $n = 12$ ), which indicated that they were supportive. Lastly, four points ( $n = 4$ ), indicated that they were highly supportive of medication.

**Parenting scale.** *The Parenting Scale* consisted of three statements as follows:

*Child/children with Attention Deficit Disorder (ADD) have a parent(s) who abuse their ADD medication* was coded (0) agree and (1) disagree; *Parents who place their child/children on medication for Attention Deficit Hyperactivity Disorder do so to get government funding for their child's "disability"* was coded (0) agree and (1) disagree; *Parents want to medicate their child/children to control them* was coded (0) agree and (1) disagree. Respondents' statements were summed and a new variable *Parenting Scale* was created. The scores were analyzed on a zero to three point scale. Zero (0) indicated *biased attitudes against parents*, one (1) indicated *somewhat biased attitudes against parents*, two (2) indicated *somewhat unbiased attitudes toward parents*, and three (3) indicated *unbiased attitudes toward parents*.

The *Parenting Scale* yielded 146 complete responses. Six total scores were thrown out due to incomplete or missing data. A little over half ( $n = 75$ ) scored a total of three points indicating unbiased attitudes toward parents and just under half ( $n = 63$ ) scored two points indicating somewhat unbiased attitudes toward parents. Lastly, under one tenth ( $n = 7$ ) of the

respondents scored one point indicating that they were somewhat biased against parents and only one respondent scored zero, which indicated completely biased attitudes against parents.

**Attitude statements by number of knowledge questions correct.** An analysis of differences in attitude by the *number of knowledge questions correct* was conducted. For the statement, *Parents who place their child/children on medication for Attention Deficit Hyperactivity Disorder do so to get government funding for their child's "disability", there was* a significant difference in numbers of knowledge questions correct between those who agreed and disagreed with this statement ( $p = .038$ ). Those who agreed ( $n = 7$ ) with the statement had a mean score of 21.86 ( $SD = 2.48$ ). Those who disagreed ( $n = 126$ ) with the statement had a mean score of 24.11 ( $SD = 2.38$ ). However, it is important to note that only seven respondents disagreed with the statement. This can cause skewed findings making it difficult to formulate a true correlation between variables. Never the less, I felt it was interesting to note that the mean number of knowledge questions correct was higher among those who had less biased views toward parents.

**Attitude statements by gender.** The number of women ( $n = 114$ ) greatly outnumber the men ( $n = 9$ ) (Appendix N). A larger sample would provide a greater number of respondents from which a true mean could be calculated. Despite this, I found the results interesting and I wanted to share them. Gender and attitudes presented non-significant and significant findings. However, only those with a significance level of  $p < .05$  will be discussed. The statement, *Parents who place their child/children on medication for Attention Deficit Hyperactivity Disorder do so to get government funding for their child's "disability",* was significant at  $p = .042$ . More than three-quarters of men ( $n = 6$ ) and women ( $n = 125$ ) both disagreed with the statement.



**Attitude statements by age.** Based upon the Chi square analysis when participants responded to the statement, *Psychostimulants should only be used in severe cases of Attention Deficit Disorder*, the rates of those who agreed with the statement declined as the number of years increased ( $p = .004$ ) (Appendix O). More than three-quarters ( $n = 43$ ) of social workers ages 18 to 29 agreed and more than half ( $n = 17$ ) of ages 30 to 39 agreed. In addition, respondents ages 40 to 49 ( $n = 16$ ) agreed and social workers ages 50 to 64 ( $n = 11$ ) also agreed with the statement.

Social work respondents ages 18 to 29 ( $n = 29$ ) were more likely to agree with the statement, *Most social workers are not familiar with the types of medication used for Attention Deficit Hyperactivity Disorder* ( $p = .01$ ). In contrast, social workers ages 30 to 39 ( $n = 21$ ) and ages 40 to 49 ( $n = 23$ ) were more likely to disagree just as those ages 50 to 64 ( $n = 19$ ).

The most highly significant ( $p = .000$ ) between attitude and ages included the statement: *The pharmaceutical companies are responsible for the increase in Attention Deficit Hyperactivity Disorder diagnosis*. Respondents ages 18 to 29 ( $n = 35$ ) agreed with the statement, whereas respondents ages 30 to 39 ( $n = 16$ ) disagreed with the statement. Social work respondents ages 40 to 49 ( $n = 21$ ), also disagreed with the statement as well as those ages 50 to 64 ( $n = 22$ ).

**Attitude statements by race.** No significant associations were present when analyzing the *race* and the attitude statements.

**Attitude statements by area of residence.** *Area of residence* and attitude statements did not yield significant results.

**Attitude statements by religion or spiritual beliefs.** No significant associations were present when analyzing the demographic *religion or spiritual beliefs* question with the individual attitude statements.

**Attitude statements by marital status and family size.** No significant associations were found between *marital status* and the attitude statements. However, the statement, *Psychostimulants should only be used in severe cases of Attention Deficit Disorder*, when cross tabulated with *number of children* presented with a significance level of  $p = .007$ . Social work students and social work professionals having no children were more likely to agree ( $n = 49$ ) with the statement. Those having one child ( $n = 14$ ) agreed as well as those having two children ( $n = 21$ ). Close to all ( $n = 2$ ) of those with three or more children agreed with the statement.

**Attitudes by years working as a social worker & field population.** The *number of years working as a social worker* did not yield any significant findings in conjunction with the attitude statements. However, the statement, *Controlling children with Attention Deficit Disorder (ADD) is the main goal in medicating children with ADD*, when cross tabulated with social workers' current practice field yielded a significance level of  $p = .003$ . Those working only with children ( $n = 27$ ) and those working only with adults ( $n = 17$ ) were more likely to disagree with the statement. Social workers who indicated that they work with both adults and children ( $n = 45$ ) disagreed with the statement. The combined group ( $n = 18$ ) were also more likely to disagree with the statement.

## Chapter 4 Discussion

### Discussion

When looking into graduate programs, I was given a pamphlet that listed the *NASW Code of Ethics*. It was after readings through these guidelines, that I ultimately made the decision to pursue a master's degree in social work. I felt a great connection to the values that were listed before me. I admired the importance of *service, social justice, dignity and worth of a person, the importance of human relationships*, as well as, *competence*.

Some of the NASW Ethical Principles became a motivating factor in my decision to complete my master's thesis. By raising awareness about AD/HD, I hope to contribute to providing *social justice* to persons with AD/HD and their families who suffer with the stigma of mental health disorders and all the struggles and difficulties that go along with it. I hope to increase understanding to provide *dignity and worth* to these individuals who are living with disorders that, in many instances, lack the understanding and concern from others. Lastly, I wish to provide information that helps bring together those with opposing views about the disorder to promote and restore the relationships that are divided by either lack of education or the lack of understanding about the disorder.

AD/HD is the most commonly diagnosed mental health disorder in children (AACAP, 1997; APA, 2000; Barkley, 1998; Furman, 2005; Ghanizadeh et al., 2005; Kollins et al., 2001; Lopez, 2006; Mayes & Erkulwater, 2008; Rowland et al., 2002; Plomp et al., 2009; Shaffer et al., 1996; Shaywitz & Shaywitz, 1987; Sinder et al., 2003; Whalen et al., 1989), yet it is greatly misunderstood by the general population. Having discussed the disorder with non-professionals outside of the field of social work, I have found that many people have very strong negative opinions about AD/HD treatment, the parents with children who have AD/HD, and their

teachers. As a result, I became curious to see if social work professionals and social work students also held these same views and if their professional and educational backgrounds influenced them at any level.

The following will discuss my thoughts and assumptions related to my research questions and the results of my study. I will discuss my reasons for choosing the questions, as well as, my thoughts about the survey responses. Speculations about significant findings and correlations will also be revealed. Previous studies will be mentioned briefly in comparison and in contrast to my findings.

### **Familiarity and where social workers learned about AD/HD**

Due to the prevalence of AD/HD, I anticipated that most social work respondents would know someone with the disorder. Also, since many of my classmates discussed having AD/HD, I expected a large number to indicate that they knew someone with the disorder. I found it surprising, however, that just under a quarter did not know someone with the disorder. I was also surprised to find that some respondents preferred not to say. I assumed that there remains some embarrassment or stigma related to sharing their personal knowledge about the disorder. It is also likely that they in fact may have not known anyone with the disorder.

I expected most respondents to be somewhat familiar with the AD/HD diagnostic criteria found in the DSM-IV-TR. Since July 2005, social workers who have renewed their license or sat for the state licensure exam for the first time would need to be aware of the material included in the DSM-IV-TR. Social workers who are currently licensed and who wish to maintain licensure must partake in continuing education courses. Social workers can choose to take courses related to the DSM-IV-TR and mental health issues. Other college classes cover diagnostic material helping students become more familiar with the illnesses and pathologies of mental health

disorders. I speculated that social workers would be familiar with the DSM-IV-TR diagnostic criteria through the previous methods, as well as, through lectures, readings, and field experience.

Because there were a large number of respondents in their twenties, I predicted that a large number would be in college or would have recently graduated from a social work program. With this in mind, I expected a large number to have learned about AD/HD from college or university classes, which close to all respondents indicated having learned this way. I expected that persons having been out of school and working in the field would be more likely to utilize CEU opportunities and workshops, which they had. Since graduate and undergraduate students were part of the sample population, I expected a significant amount of respondents to have learned about AD/HD from journal articles and books, which are generally required in classes. Most had learned this way as well.

Internet websites are great research tools and access is generally required for academic success, so I expected that a large number of respondents would have learned about AD/HD via this method, which they had. In addition, social environments can often play a significant role in ones' awareness of health and disorders. Therefore, I also anticipated that respondents had learned through a variety of personal contacts like through colleagues, family, and friends. I did not expect a significant number of social workers to have learned about AD/HD from their clients, although a small number indicated that they had. I anticipated that most social workers did not hold the television as a reputable source for obtaining educational material about AD/HD, but I assumed that some may have learned a little about the disorder via this source, which was indeed the case.

## Knowledge

Overall, I expected social workers to score relatively high on the knowledge questions. Social work professionals are one of the largest populations to provide mental health services to youth, as well as, adults (Gibelman & Schervish, 1997). Moreover, social workers play a large role in the treatment of AD/HD as they provide referrals to prescribing professionals (Moses, 2008). With this in mind, it is likely that social work professionals and social work students have been exposed to AD/HD diagnosis and its treatment through academia or through internships and work experience.

**Knowledge questions correct by gender.** The *total number of knowledge questions correct* had no significant relationship to *gender*. There was no surprise as to the small number of male participants since most school of social work classrooms generally have a significant number of women compared to the number of men. The distribution between men and women and *total number of knowledge questions correct* differed slightly. This is likely due to the large number of women respondents, which created a greater range among *total knowledge questions correct*, when compared to the range that men had. Likewise, Pentecost and Wood (2002) had a large difference in the number of women to men where 75% of their study was made up of women and 22% was made up of men. Unlike my study, they found significant gender-related differences in relation to knowledge. Here women were more likely to incorrectly deem *aggression toward others* as a symptom of AD/HD and men were more likely to incorrectly deem *annoying habits* as typical AD/HD behavior.

Pentecost and Wood (2002) study was the only study to incorporate social workers and their knowledge about AD/HD. However, the knowledge measured was based on case scenarios, which differs greatly from the survey study that I have conducted. Their study focused primarily

on a target population of childcare social workers, whereas my study focused on social work professionals from varying fields, as well as, social work students.

**Knowledge questions correct by age.** The age difference between students and professionals in my study made it an interesting characteristic to analyze. However, no significant findings between age groups and *total number of knowledge questions correct* were found. On a separate note, analyzing age was unique to my study in that other studies like that of Pentecost and Wood (2002) did not look at age. Moreover, Moses (2008) also did not find any meaningful correlations with age and knowledge.

**Knowledge questions correct by race.** *Race* and total number of knowledge question correct resulted in no significant findings. Pentecost and Wood (2002), again, did not discuss race as a variable characteristic when analyzing social workers knowledge about AD/HD. I surmise that social workers, regardless of race, obtain similar scores on knowledge due to the similar ways that social workers learn about AD/HD.

**Knowledge questions correct by area of residence.** *Area of residence* along with knowledge did not yield significant results. Previous studies have not focused on *area of residence* as a variable characteristic. It is possible that had more specific variable characteristics pertaining to area of residence been included significant findings may have been present.

**Knowledge questions correct by religion or spiritual beliefs.** To my surprise, religion had no significant impact on the number of knowledge questions correct. I predicted having a large number of Baptist respondents, so I was surprised to find that Catholicism had the greatest number of respondents in any one religion or spirituality category. Unexpectedly, there were no Muslim respondents, and I was equally surprised to find a large number of agnostic and atheist

respondents relative to the overall number in each category. Other studies about social workers and AD/HD did not focus on religion or spiritual beliefs as a variable. It is possible that religion generally is not a factor among social workers and their knowledge about AD/HD. However, more in depth research on religion and knowledge about AD/HD would be interesting.

**Knowledge questions correct by marital status and family size.** No significant findings were evident between knowledge, marital status, and family size. Unlike the current study, Pentecost and Wood (2002) did not look at marital status or family size as an influence on knowledge about AD/HD. Other studies, also, did not consider marital status or family size to affect knowledge about AD/HD.

**Knowledge questions correct by years working as a social worker & field population.** No significant findings were present in my analysis of total number of knowledge questions correct and number of years working as a social worker. It appears that the knowledge levels of social work professionals and social work students remained the same despite the number of years working or the field population. This may attest to the levels of continuing education courses and the field populations in which AD/HD children are found.

### **Attitudes**

**Attitude scales.** The attitude scales were somewhat similar to the results found in previous analysis. The scales revealed that social work professionals and social work student are unbiased in their attitudes toward parents and that they also are less likely to favor medication. This is in contrast to the study conducted by Moses & Kirk (2006), which revealed that their survey respondents regarded medication as necessary and that parents' inadequacy was the underlying issue. It is important to note that differences in population samples may create differing results. It is also important to note that the phrasing of questions can influence



responses, which may account for the difference between my study results and the results in Moses & Kirk's 2006 study.

**Attitude statements by number of knowledge questions correct.** The only attitude statement that proved significantly associated with number of knowledge questions correct, was the statement, *Parents who place their child/children on medication for Attention Deficit Hyperactivity Disorder do so to get government funding for their child's "disability"*. The statement is very biased and unlike that of the values that the NASW seeks for social workers to uphold. I expected that most social workers would disagree, with this statement. Social work professionals and social work students, according to my study, are knowledgeable about AD/HD. I can speculate that respondents who scored well on knowledge were also more likely to disagree with the statement. It appears that the respondents understand the complexity of the disorder and that they know that parents who seek assistance do so for a variety of reasons and not for malicious intent.

One can say that parents with children who have AD/HD justifiably wish to have some form of compensation for the impact that the disorder has on them and their families. AD/HD behavior causes disruption to families, schools, and society (Barkley & Murphy, 1996; Barkley et al., 1996; Swensen et al., 2004; Woodward, Fergusson, & Horwood, 2000). This translates into financial costs, which are greater when raising children with AD/HD than raising non-AD/HD children (Biederman et al., 1991). In fact, the cost per household is almost double and the medical expenses are almost three times greater (Swensen et al., 2003).

Not only is medical care and work loss major financial expenses in families with children who have AD/HD, but so are the emotional strains of raising children with AD/HD. Parents with children who have AD/HD feel less gratification in their role as parents than do parents with

non-ADHD children (Anderson et al., 1986; Breen & Barkley, 1988; Konstantareas & Homatidis, 1989). Many of these parents are 2 to 4 times more likely to have mental health problems such as depression, anxiety, and substance abuse according to Chronis (2004). In fact, mothers of children with AD/HD have reported higher rates of self-blame and social isolation (Johnston & Mash, 2001; Mash & Johnston, 1990), and depression is more common among mothers with AD/HD children (Befera & Barkley, 1985; Bernier & Siegel, 1994; Brown & Pacini, 1989; Lahey et al., 1988; Sandberg, Wieselberg, & Shaffer, 1980; Webster-Stratton, 1988; Webster-Stratton & Hammond, 1988).

The struggles and difficulties that parents encounter when raising children with AD/HD, seem understandable. One can speculate that some parents may try to make light of the tense situations in which they are faced. Appearing to seek out government funding may be one method to draw attention away from the seriousness of the disorder. According to the results, most social work professionals and social work students did not agree with the statement that, *Parents who place their child/children on medication for Attention Deficit Hyperactivity Disorder do so to get government funding for their child's "disability"*. However, there were a few respondents who did agree with the statement. It is possible that they may have had a negative encounter, which biased their attitudes.

**Attitude statements by gender.** Despite having a small number of men as respondents, it can be said that, overall, women and men both disagree at approximately the same rate pertaining to attitudes about parents and government funding for their children. Other studies have shown difference in opinions between men and women regarding medicating children with AD/HD. According to Moses and Kirk (2006), males were more likely to view medication as a necessary treatment for AD/HD. In addition, it indicated that men and women on average have

the same attitudes toward the speculation that parents medicate their children to gain financial assistance. However, with such a small number of male participants, it is difficult to say how meaningful these findings are. Furthermore, having a larger male sample is needed to deem these findings as representative of the larger social work population. Although it is important to note that males in the social work field are a minority.

**Attitude statements by age.** *Age* and *attitudes* when not combined into a scale, had the greatest number of significant correlations. Each significantly correlated *age* and *attitude statement* are discussed below.

***Psychostimulants should only be used in severe cases of Attention Deficit Disorder.*** When participants responded to the statement, *Psychostimulants should only be used in severe cases of Attention Deficit Disorder*, the rates of those who agreed with the statement declined as the ages increased ( $p = .004$ ) (Appendix O). One can speculate that social work professionals and social work students in their earlier years are more likely to feel that non-medicinal therapeutic techniques should be exhausted prior to the use of medication treatment. Their agreement or disagreement to the statement, *Psychostimulants should only be used in severe cases of Attention Deficit Disorder*, may be influenced by their therapeutic orientation.

Moreover, it seems that in schools of social work today there is a greater emphasis on family systems and cognitive behavioral theoretical orientations more so than psychodynamic theoretical orientations of decades past. Households with AD/HD children often have enormous strain placed on the functioning of the family within the home (Anastopoulos, 1992; DuPaul et al., 2001; Keown & Woodward, 2002; Peters, Calam, Harrington, 2005). Family systems can improve the dynamic by working with the family as a whole to help create and foster healthier relationships among family members. Likewise, cognitive behavioral techniques improve

parenting skills, which reduce familial strain by improving parenting, reducing familial stress, and increasing the sense of caregiver competence (Anastopoulos & Shelton, 2001).

As a result, reducing AD/HD symptoms is likely to lessen the amount of medication treatment needed. Using non-medicinal therapeutic options prior to medication treatment may help to prevent the unnecessary use of medication. It is possible that social work professionals and social work students who are more familiar with family systems and cognitive behavioral therapeutic techniques are more likely to value these techniques over the use of medication treatment.

A limitation of my study is that I did not ask the respondents about their theoretical orientation. Moses (2008), however, did inquire about the theoretical orientation of social workers and their knowledge about medication treatment in his study titled, *The “Other” Effects of Psychotropic Medication: Social Workers’ Perspectives on the Psychosocial Effects of Medication Treatment on Adolescent Clients*. Although his study did not reveal significant links between age and theoretical orientation, it would have been interesting to see if age, theoretical orientation, and the statement *psychostimulants should only be used in severe cases of Attention Deficit Disorder* in my study had any meaningful correlations within my study.

On another note, I believe that the media may also have an impact on attitudes about medication treatment. Advertising seeks to target certain populations depending on the product being sold. Whole foods, organic and all natural product labels can be seen in everything from household cleaners to pet food. Online advertisements, magazine advertisements, commercials, and even billboards target new families and young adults. In general, the advertisers display characters from Generation X<sup>19</sup> or Generation Y<sup>20</sup>. Those who relate to the characters are more

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<sup>19</sup> - The generation of people born roughly during 1965 to 1980 in Western countries, especially the United States

likely to adapt or desire to partake in the behavior being demonstrated. Furthermore, I consider the possibility that respondents from these generations are more likely to be influenced by advertising targeted for them. The all natural way of life is likely to transfer to the different aspects of their lives as well. One can speculate that these respondents may be more inclined to avoid synthetic materials like those found in pharmaceutical medication.

Furthermore, the pharmaceutical companies are more likely to target Baby Boomers<sup>21</sup> as some Baby Boomers are now facing growing health complications. I speculate that this population may be more likely to see the positive effects of pharmaceutical medication treatment and, therefore, they may be more likely to view medication as necessary. Persons who do not suffer from the ailments targeted in advertisements may become indifferent to the pharmaceutical companies and disregard the information.

*The pharmaceutical companies are responsible for the increase in Attention Deficit Hyperactivity Disorder diagnosis.* In addition, the most highly significant ( $p = .000$ ) results between *attitude* and *ages* were the statement: *The pharmaceutical companies are responsible for the increase in Attention Deficit Hyperactivity Disorder diagnosis.* More than half of the Generation X and half of Generation Y agreed with this statement, whereas almost all Baby Boomers disagreed with the statement.

Generation X and Generation Y may be receiving mixed messages, which could explain their divide in agreement with the statement; *the pharmaceutical companies are responsible for the increase in Attention Deficit Hyperactivity Disorder diagnosis.* Going back to the previous discussion, theoretical orientation, as well as, media influences can play a role in attitudes.

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<sup>20</sup> - The generation of people born approximately in or after 1980 in Western countries, especially the United States

<sup>21</sup> - Somebody born during a baby boom, especially the one following the end of World War II and between the years 1946 and 1964

Additional research is needed to determine where the differences originate and how social work professionals and social work students formulate their views on the pharmaceutical companies.

*Most social workers are not familiar with the types of medication used for Attention Deficit Hyperactivity Disorder.* Contrastingly, it is possible that respondents over the age of 50 are more familiar with medication needed for AD/HD and they are more likely to have seen positive and negative results from medication treatment. The idea that Generation X and Generation Y social workers are less familiar with medication types compared to that of Baby Boomer social workers may not necessarily hold merit. In fact, when social workers were given the statement, *Most social workers are not familiar with the types of medication used for Attention Deficit Hyperactivity Disorder* ( $p = .01$ ), Baby Boomer social workers were more likely to disagree. It is possible that the social workers who disagreed with this statement are confident in their abilities and knowledge regarding medication treatment for AD/HD. The same applies to Generation X social workers. Generation Y social workers with less field experience are likely to be not as familiar with the medication and therefore more likely to agree that, *Most social workers are not familiar with the types of medication used for AD/HD.*

Moreover, social workers in their 40s were more likely to agree that, *Most social workers are not familiar with the types of medication used for AD/HD*, than any other group, which may introduce the idea of generational influences and educational trends. However, the most notable is that each surrounding age group 30 to 39 and 50 to 64 both presented with the same percent of disagreement per group.

**Attitude statements by race.** In my experience, people from the same demographic background have cultural similarities that influence their value system. I thought that this would prove evident in my analysis of *race* and *attitudes*, but it did not. It appears that regardless of

race, social workers hold similar attitudes about AD/HD and children according to my study. One can speculate that social work values supersede race.

**Attitude statements by area of residence.** I expected that most respondents would be from suburban areas. I also speculated that a greater number of respondents would be from an urban area since many of the students attend an urban university. I estimated that an even smaller number of respondents would reside in rural areas. All in all, despite the lack of significant correlations between *attitudes* and *area of residence*, I felt it would be interesting to note social work professionals' and social work students' areas of residence.

**Attitude statements by religion and spiritual beliefs.** In my experience, non-social work professionals who identify with the Christian faith have strong attitudes against medicating children for the treatment of AD/HD. Many of the same individuals question the validity of the disorder altogether. I thought that these same attitudes would prove evident among the social work population that I surveyed. This, however, was not true and the attitude statements and religion and spiritual beliefs did not present any significant relationships. Again, other researchers found no significance with religion and spiritual beliefs in conjunction with attitudes. However, it is important to mention that the attitudes measured by other researchers differed in method and focus. For example, Moses and Kirk (2006) study was primarily about medication treatment and Moses (2008) focused on clinicians and their attitudes about the psychosocial effects of medication treatment on their clients.

**Attitude statements by marital status and family size.** Marital status did not yield significant results. Coming from a large family, I thought it would be interesting to see if family sizes had an impact on attitudes. It did not. Interestingly, however, respondents with no children, one child, or two children were more likely to agree that, *Psychostimulants should only*

*be used in severe cases of Attention Deficit Disorder*, whereas, respondents with three to four children were more likely to disagree with the statement.

One can speculate that the fewer children one has, the easier it is to follow through with positive behavioral techniques rather than using invasive methods to curb behavioral problems. The more children one has the more difficult it can be to take time to address each of the children's issues. Having a greater number of children with moderate to mild issues could warrant more drastic measures like using medication to alleviate problems.

Parenting styles, which were discussed in my literature review, have an impact on the behavior of the children. A parent with a greater number of children may stress high parental involvement and therefore utilize all parental attempts to remedy the problem prior to seeking medicinal support. Lastly, a larger sample size of families with more than four children is needed to truly support these speculations.

**Attitude statements by years working as a social worker and field population.** I expected that most respondents would disagree with the statement, *Controlling children with Attention Deficit Disorder (ADD) is the main goal in medicating children with ADD*. As discussed in earlier chapters, AD/HD can involve co-occurring disorders where in some instances needing to enforce control on the children's behavior is necessary and possibly life saving.

Moses and Kirk (2006) revealed that theoretical orientation and practice field had the largest impact on the attitudes about psychotropic drug treatment. They found that almost 80% agreed that medication was a necessary treatment in AD/HD. My research indicated that respondents working with only children, only adults, and both children and adults were all three-quarters more likely to disagree that controlling children is the main goal in medicating them.



## **Limitations**

Most of the study respondents are European American/Caucasian female social work students in their twenties living in Michigan. The small sample sizes of males and non-European Americans created limitations. Percentages and means appeared more meaningful than they truly were due to the small numbers, which was usually 10 or sometimes much less for the non-European Americans. In many instances groups had to be combined or disregarded to obtain meaningful results. The lack of diversity within the study may be indicative of the social work profession as a whole. Nevertheless, it is difficult to say that this study is representative of the larger social work population.

Lastly, the survey was not piloted and I failed to ask respondents their theoretical orientation. In addition, social workers who were particularly interested in AD/HD may have been more likely to respond to the recruitment efforts than social workers who were not interested in the topic. This is likely to bias the results and, therefore, cause the study to be unrepresentative of the greater social work population.

## **Recommendations for future research**

Since social workers provide a great number of services to the AD/HD population and their families, it is important for social workers to be diligent about staying up to date on current AD/HD research findings. Schools of social work can continue incorporating AD/HD education into their curriculum. In addition, social work educational institutions and workplaces can continue to assist social work professionals and social work students in adhering to the *NASW Code of Ethics* to diminish or prevent biases that may interfere with the treatment of AD/HD clients and their families.

**Implications for practice**

Additional research is needed to determine if social workers' knowledge and attitudes have a positive or negative effect on children with AD/HD, their families, and the collaborative efforts with other health professionals. Should the results be significant, education and training can be translated into techniques that are best suited for social work professionals and social work students. The Council on Social Work Education (2011) centers on teaching evidence based practice. When treatment of individuals is considered, it is important to find what is the most beneficial to them and implement it into practice. Through continued research these endeavors can be achieved.

## APPENDIX A

## Human Investigation Committee Approval



HUMAN INVESTIGATION COMMITTEE  
 101 East Alexandrine Building  
 Detroit, Michigan 48201  
 Phone: (313) 577-1628  
 FAX: (313) 993-7122  
<http://hlc.wayne.edu>



## CONCURRENCE OF EXEMPTION

To: Angiah Gomez  
 Social Work Instruction Unit

From: Eliza Barton, Ph.D.  
 Chairperson, Behavioral Institutional Review Board (B3)

Date: October 20, 2009

RE: HIC #: 109006B3X  
 Protocol Title: Social Workers' Knowledge and Attitudes about Medicating Children with ADD/ADHD  
 Sponsor: Social Work Instruction Unit  
 Protocol #: 090007833

The above-referenced protocol has been reviewed and found to qualify for Exemption according to paragraph #2 of the Department of Health and Human Services Code of Federal Regulations (45 CFR 46.101(d)).

- Flyers (4)
- Advertisement
- Facebook Recruitment Script
- Internet Information Sheet

This proposal has not been evaluated for scientific merit, except to weight the risk to the human subjects in relation to the potential benefits.

- Exempt protocols do not require annual review by the IRB.
- All changes or amendments to the above-referenced protocol require review and approval by the HIC BEFORE implementation.
- Adverse Reactions/Unsuspected Events (AR/UE) must be submitted on the appropriate form within the timeframe specified in the HIC Policy (<http://www.hlc.wayne.edu/hicpol.html>).

## NOTE:

1. Forms should be downloaded from the HIC website at each use.
2. Submit a Closure Form to the HIC Office upon completion of the study.

## APPENDIX B

Social Work Student Recruitment Flyer

## BSW and MSW Students



**Want a Chance to Win a  
\$50 Barnes & Noble Gift Card?**

**Share Your Knowledge and Attitudes about  
Medicating Children with ADD & ADHD  
in a Student Research Study**

**Eligibility: School of Social Work Student or  
Social Work Professional**

**Survey: One-Time 15 min Online Survey  
Voluntary and Confidential**

**Contact: [SW.ADD.ADHD@gmail.com](mailto:SW.ADD.ADHD@gmail.com)  
to receive the link to the survey**

## APPENDIX C

Family Social Worker Recruitment Flyer



## Want a Chance to Win a \$50 Barnes & Noble Gift Card?

Looking for Social Workers to Participate in  
Survey Research about

Social Workers' Knowledge and Attitudes  
about Treating Children with ADD/ADHD

**Eligibility:** Adult Social Work Professionals &  
Students in the School of Social Work

**Survey:** One-Time 15 Minute Online Survey  
Voluntary and Confidential

**Contact:** [SW.ADD.ADHD@gmail.com](mailto:SW.ADD.ADHD@gmail.com) to  
Receive the Link to the Survey

## APPENDIX D

## Geriatric Social Worker Recruitment Flyer

**Want to Win a \$50 Barnes and Noble Gift Card?****Looking for Social Workers to  
Participate in Survey Research about****Social Workers' Knowledge and Attitudes about Treating  
Children with ADD & ADHD**

**Eligibility:** Social Work Professionals &  
Social Work Students

**Survey:** One-Time 15 Minute Online Survey  
Voluntary and Confidential

**Contact:** [SW.ADD.ADHD@gmail.com](mailto:SW.ADD.ADHD@gmail.com) to  
Receive the Link to the Survey



## APPENDIX E

## School Social Worker Recruitment Flyer



## Looking for Social Workers to Participate in Survey Research About

### Social Workers' Knowledge and Attitudes about Medicating Children with ADD and ADHD

**Eligibility:** Adult Social Work Professional or  
Student in School of Social Work

**Survey:** One-Time 15 Minute Online Survey  
Voluntary and Confidential

**Chance to Win a  
\*\$50 Barnes & Noble Gift Card\***

**Contact:** [SW.ADD.ADHD@gmail.com](mailto:SW.ADD.ADHD@gmail.com)  
to Receive a Link to the Survey

## APPENDIX F

## Facebook Group Page

**Name:****LOOKING FOR SOCIAL WORKERS TO PARTICIPATE IN SURVEY RESEARCH****Category:****Student Groups - Academic Groups****Description:****Social work students and social work professionals do your part to contribute to the knowledge base of the profession.****Participate in a one-time 15-minute confidential online survey****Interested persons send an email to [sw.add.adhd@gmail.com](mailto:sw.add.adhd@gmail.com) and the link to the survey will be sent to you.****Privacy Type:****Open: All content is public.****Contact Info****Email: [sw.add.adhd@gmail.com](mailto:sw.add.adhd@gmail.com)****Location: Detroit, MI**



**APPENDIX G**

## NASW Classified Print Advertisement

Looking for Social work professionals and social work students to participate in a one-time online survey about social workers' knowledge and attitudes about the treating children with AD/HD. Do your part to contribute to the knowledge base of the profession.

Participate in a one-time 15-minute confidential online survey.

Interested persons send an email to Angelah Gomez at [sw.add.adhd@gmail.com](mailto:sw.add.adhd@gmail.com) and the link to the survey will be sent to you.

## APPENDIX H

### Knowledge Scale

There are three types of Attention Deficit Disorder

Children who take medications for Attention Deficit Disorder will become addicted to the medication

Attention Deficit Disorder causes significant impairment in normal daily function

Psychopharmaceuticals that are used for Attention Deficit Disorder with or without Hyperactivity can cause death in some children

Children with Attention Deficit Hyperactivity Disorder cannot sit still

Children with Attention Deficit Disorder have a smaller brain size than children without Attention Deficit Disorder

Attention Deficit Disorder is a genetically inherited disorder

Medication for Attention Deficit Disorder will lead to substance abuse later in life

Once diagnosed with Attention Deficit Disorder the person will have it for the rest of his or her life

Hyperactive-impulsive diagnosis is more likely to warrant medication than Attention Deficit without Hyperactivity

Children with Attention Deficit Disorder without Hyperactivity have poor grades

Parents of children with Attention Deficit Disorder Hyperactivity should attend parenting classes

Psychopharmaceuticals change the child's behavior better than any other method

Attention Deficit Hyperactivity Disorder (AD/HD) focused parenting classes do not help the children with AD/HD

Cognitive Behavioral Therapy is better at creating positive behavioral changes in children with ADD than other types of interventions

Poor parenting skills can cause Attention Deficit Disorder symptoms

Family Systems Therapy is better at creating positive behavioral changes in children with ADD than other types of interventions

Children with Attention Deficit Disorder have few friends

Girls are more likely than boys to be diagnosed with Attention Deficit Hyperactivity Disorder

Children with Attention Deficit Disorder who attend social skills groups will have the most positive behavioral changes

Psychodynamic Therapy is better at creating positive behavioral changes in children with ADD than other types of interventions

Children who live in poverty are more likely to have Attention Deficit Hyperactivity Disorder

Children with Attention Deficit Disorder talk continuously

Mothers who use drugs have children with Attention Deficit Disorder

Children are diagnosed with Bipolar Disorder when they truly have Attention Deficit Disorder

Parental alcoholism results in children having Attention Deficit Disorder

Domestic violence causes Attention Deficit Disorder in children

Children of color are more likely than white children to be diagnosed with Attention Deficit Disorder

Bipolar Disorder has the same symptoms as Attention Deficit Disorder

Attention Deficit Disorder in children is usually caused by a dysfunctional family structure

Child abuse is the cause of Attention Deficit Disorder in children

Attention Deficit Disorder is the most commonly diagnosed mental health disorder in children

## APPENDIX I

Table 1

*Total number of knowledge questions correct by gender*

Total number correct	Women <i>N</i> = 132 $\bar{x}$ = 24.12		Men <i>N</i> = 11 $\bar{x}$ = 22.67	
	n	%	n	%
18	3	2.6		
19	1	.9	1	11.1
20	4	3.5	1	11.1
21	7	6.1	2	22.2
22	13	11.4		
23	12	10.5	1	11.1
24	22	19.3	2	22.2
25	20	17.5		
26	18	15.8	2	22.2
27	6	5.3		
28	5	4.4		
29	1	.9		
30	1	.9		
31	1	.9		

 $\bar{x}$  = Mean number correct

## APPENDIX J

Table 2

*Total number of knowledge questions correct by age group*

Total number correct	18-29		30-39		40-49		50-64	
	$N = 51$		$N = 25$		$N = 23$		$N = 24$	
	$\bar{x} = 23.80$		$\bar{x} = 24.16$		$\bar{x} = 24.52$		$\bar{x} = 23.83$	
	$n$	%	$n$	%	$n$	%	$n$	%
18	2	3.9	1	4.0				
19	1	2.0	1	4.0				
20	4	7.8			1	4.3		
21	2	3.9	2	8.0	2	8.7	3	12.5
22	7	13.7	1	4.0	2	8.7	3	12.5
23	4	7.8	3	12.0	2	8.7	4	16.7
24	11	21.6	5	20.0	3	13.0	5	20.8
25	5	9.8	5	20.0	4	17.4	6	25.0
26	10	19.6	4	16.0	4	17.4	2	8.3
27			2	8.0	4	17.4		
28	4	7.8			1	4.3		
29							1	4.2
30	1	2.0						
31			1	4				

## APPENDIX K

Table 3

*Total number of knowledge questions correct by race*

Total number correct	African American/ Black <i>N</i> = 12 $\bar{x}$ = 23.25		European American/ Caucasian <i>N</i> = 106 $\bar{x}$ = 24.06		Other (Arabic, Hispanic, Multiracial) <i>N</i> = 4 $\bar{x}$ = +	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
18	1	8.3	2	1.9		
19			2	1.9		
20	1	8.3	4	3.8		
21	1	8.3	8	7.5		
22	2	16.7	10	9.4	1	33.3
23	1	8.3	12	11.3		
24	1	8.3	22	20.8	1	33.3
25	3	25	16	15.1	1	100
26	1	8.3	18	17	1	33.3
27			6	5.7		
28	1	8.3	3	2.8	1	100
29			1	.9		
30			1	.9		
31			1	.9		

+ When the 'other' group was combined a mean score of 25 resulted. Because there are only 5 respondents who belong in the group, the mean is not meaningful.

## APPENDIX L

Table 4

*Total number of knowledge questions correct by field population*

Total number correct	Children N = 32 $\bar{x} = 23.94$		Adults N = 18 $\bar{x} = 24.06$		Children and Adults N = 41 $\bar{x} = 24.07$	
	n	%	n	%	n	%
18					2	4.9
19	1	3.1			1	2.4
20	2	6.3			1	2.4
21	3	9.4	1	5.6	4	9.8
22	1	3.1	4	22.2	4	9.8
23	4	12.5	2	11.1	3	7.3
24	10	31.3	3	16.7	6	14.6
25	5	15.6	2	11.1	5	12.2
26	2	6.3	6	33.3	9	22.0
27	2	6.3			1	2.4
28	1	3.1			4	9.8
29					1	2.4
30						
31	1	3.1				

## APPENDIX M

### *Attitude Statements*

Attention Deficit Disorder in children requires medication

Psychostimulants should only be used in severe cases of Attention Deficit Disorder

Controlling children with ADD is the main goal in medicating children with ADD

Child/children with Attention Deficit Disorder (ADD) have a parent(s) who abuse their ADD medication

Most social workers are not familiar with the types of medication used for ADHD

Attention Deficit Disorder is over diagnosed

The pharmaceutical companies are responsible for the increase in ADHD diagnosis

Parents who place their child/children on medication for Attention Deficit Hyperactivity Disorder do so to get government funding for their child's "disability"

Elementary school teachers lack proper skills to handle most children in the classroom

Parents want to medicate their child/children to control them

Teachers are properly trained to detect children with Attention Deficit Disorder

### *Attitude Scales*

#### Medication

Attention Deficit Disorder in children requires medication

Psychostimulants should only be used in severe cases of Attention Deficit Disorder

Controlling children with ADD is the main goal in medicating children with ADD

The pharmaceutical companies are responsible for the increase in ADHD diagnosis

#### Parents

Child/children with Attention Deficit Disorder (ADD) have a parent(s) who abuse their ADD medication

Parents who place their child/children on medication for Attention Deficit Hyperactivity Disorder do so to get government funding for their child's "disability"

Parents want to medicate their child/children to control them

## APPENDIX N

Table 5

*Attitude statements by gender*

Attitude statements	Women N = 132				Men N = 11			
	Agree		Disagree		Agree		Disagree	
	n	%	n	%	n	%	n	%
Attention Deficit Disorder in children requires medication	33	25	99	75	3	27.5	8	72.7
Psychostimulants should only be used in severe cases of Attention Deficit Disorder	81	62.3	49	37.7	7	63.6	4	36.4
Controlling children with Attention Deficit Disorder (ADD) is the main goal in medicating children with ADD	32	24.2	100	75.8	3	27.3	8	72.7
Child/Children with Attention Deficit Disorder (ADD) have a parent(s) who abuse their ADD medication	5	3.8	127	96.2			11	100
Most social workers are not familiar with the types of medication used for Attention Deficit Hyperactivity Disorder	52	39.4	80	60.6	1	10	9	90
Attention Deficit Hyperactivity Disorder is over diagnosed	116	88.5	15	11.5	7	70	3	30
The pharmaceutical companies are responsible for the increase in Attention Deficit Hyperactivity Disorder Diagnosis	56	43.1	74	56.9	7	63.6	4	36.4
Parents who place their child/children on medication for attention Deficit Hyperactivity Disorder do so to get government funding for their child's "disability"	6*	4.6	125*	95.4	2*	20	8*	80
Elementary school teachers are quick to suggest that a child may have Attention Deficit Disorder	114	86.4	18	13.6	8	72.7	3	27.3
Elementary school teachers lack proper skills to handle most children in the classroom	65	49.6	66	50.4	3	27.3	8	72.7
Parents want to medicate their child/children to control them	60	45.8	71	54.2	5	45.5	6	54.5
Teachers are properly trained to detect children with Attention Deficit Disorder	15	11.5	115	88.5	1	9.1	10	90.9

\*  $p < .05$



## APPENDIX O

Table 6

*Attitude statements by age group*

Attitude statements	18-29 N = 54				30-39 N = 31				40-49 N = 29				50-64 N = 28			
	Agree		Disagree		Agree		Disagree		Agree		Disagree		Agree		Disagree	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Attention Deficit Disorder in children requires medication	16	29.6	38	70.4	9	29	22	71	6	20.7	23	79.3	4	14.3	24	85.7
*Psychostimulants should only be used in severe cases of Attention Deficit Disorder ( $p=.004$ )	43	79.6	11	20.4	17	56.7	13	43.3	16	55.2	13	44.8	11	40.7	16	59.3
Controlling children with Attention Deficit Disorder (ADD) is the main goal in medicating children with ADD	18	33.3	36	66.7	5	16.1	26	83.9	6	20.7	23	79.3	5	17.9	23	82.1
Child/Children with Attention Deficit Disorder (ADD) have a parent(s) who abuse their ADD medication	2	3.7	52	96.3	1	3.2	30	96.8	1	3.4	28	96.6	1	3.6	27	96.4
*Most social workers are not familiar with the types of medication used for Attention Deficit Hyperactivity Disorder( $p=.01$ )	29	53.7	25	46.3	10	32.3	21	67.7	5	17.9	23	82.1	9	32.1	19	67.9
Attention Deficit Hyperactivity Disorder is over diagnosed	51	94.4	3	5.6	27	90	3	10	23	82.1	5	17.9	21	75	7	25
*The pharmaceutical companies are responsible for the increase in Attention Deficit Hyperactivity Disorder Diagnosis( $p=.000$ )	35	66	18	34	15	48.4	16	51.6	8	27.6	21	72.4	5	18.5	22	81.5
Parents who place their child/children on medication for attention Deficit Hyperactivity Disorder do so to get government funding for their child's "disability"	5	9.6	47	90.4	2	6.5	29	93.5			29	100	1	3.6	27	96.4
Elementary school teachers are quick to suggest that a child may have Attention Deficit Disorder	51	94.4	3	5.6	25	80.6	6	19.4	23	79.3	6	20.7	22	78.6	6	21.4
Elementary school teachers lack proper skills to handle most children in the classroom	29	53.7	25	46.3	12	38.7	19	61.3	12	42.9	16	57.1	14	50	14	50
Parents want to medicate their child/children to control them	29	53.7	25	46.3	13	41.9	18	58.1	10	35.7	18	64.3	12	42.9	16	57.1
Teachers are properly trained to detect children with Attention Deficit Disorder	3	18.8	50	94.3	7	43.8	23	76.6	3	18.8	26	89.7	3	18.8	25	89.3

\* $p = < .05$

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**ABSTRACT****SOCIAL WORKERS' KNOWLEDGE AND ATTITUDES ABOUT TREATING CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER**

by

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The current research seeks to understand how social work students and social work professionals increase their knowledge about AD/HD and how they formulate their attitudes about the disorder. The literature provided illustrates the many components of AD/HD risks, etiology, treatments, and professional opinions about the disorder. AD/HD is one of the most studied childhood mental health disorders in the nation. However, there is little research providing insight to social workers' knowledge and attitudes about the disorder. This is especially alarming because social workers are one of the largest professional populations to provide mental health services to children and their families. Practitioners' knowledge and attitudes about the disorders has an impact on the patient-clinician relationship. It can have an affect the likelihood that the client will adhere to the treatment plan and it affects the professional relationship between the clinician and other treatment professionals.

## AUTOBIOGRAPHICAL STATEMENT

As I made my way to the busy street, my friend gave me a nudge and pointed to a group of young boys huddled around a newspaper. She made such a fuss that I had to stop and peak over the group's shoulders. Surrounded by the markings and symbols that make up the Chinese language were pictures of my friend and me. The pictures were from an event that we attended a few nights previous. Neither of us was well versed in the Chinese language, so we could only speculate as to what was said about us in the article. It seemed so odd being unable to read something as simple as a newspaper. Still puzzled and a little baffled by my inability to read the article, I continued my way to the driver and got into the car. I watched the driver quickly maneuver his way through the busy street and I gazed at the flurry of businesspersons making their way across the busy intersection. I watched the fashionable young people with cell phones in hand typing as though they had a tiny computer in front of them. Little did I know that this form of communication would hit my nation almost a decade later.

The driver headed toward the outskirts of the city to avoid the heavy traffic. Here, there were no businesspersons, no texting, and no busy streets. Along a stream, I saw large colored metal squares; worn, dilapidated and looking as though they were placed together to form roughly shaped cubes. These were homes--places where families ate, and where children are raised. With no running water or secure doors to prevent the elements from seeping into their little homes, I wondered how the dwellers prevented the spread of diseases and how they kept safe from what may lurk outside. Saddened by it all, I humbly listened to the driver explain how the locals rely on mass transit. He went on to explain that vehicles were much too expensive and that they were only used by the very wealthy. As I continued to gaze out of the window thinking about all that I had seen, I recalled the confusion and frustration I felt earlier when I wanted to understand what the newspaper article read.

The events of the morning began to cultivate in me a deeper sense of respect for the struggles and challenges that some populations encounter. Clearer to me were the social injustices that have led to the disparity among different races, ages, cultures, mental abilities, health, income, and education levels. I realized that barriers of all sorts prevent different populations from living a life that so many others have had the opportunity to live. Returning home, I saw the blight, poverty, and sociological barriers surrounding my home much more differently than I had prior to my trip some 15, 000 km away.

What began as a fun trip overseas resulted in something much larger than I could have ever imagined. My journey through the outskirts of town and the baffling newspaper experience created a humbling sense of empathy and the desire to create a better life for others. I began taking action at home to address social issues and creating positive change. As a young single mother and a first generation college student, I sought to eliminate the educational barriers that had created difficulty for past generations. One obstacle at a time, I pushed through the oppression hoping to set new traditions for the generations after me. Ending my years as a graduate student, I leave with a great sense of accomplishment and delight. I leave knowing that I walk together with those who are striving for something better for their families, loved ones, and society. I understand that despite the difficulties, one must strive to overcome the barriers that they face, not only for themselves, but for all.