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A NATIONWIDE SURVEY OF DISABILITY SUPPORT PERSONNEL REGARDING  
TRANSITION AND SERVICES FOR POSTSECONDARY STUDENTS WITH  
ATTENTION-DEFICIT/HYPERACTIVITY DISORDER

A DISSERTATION  
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY  
IN THE GRADUATE SCHOOL OF THE  
TEXAS WOMAN'S UNIVERSITY

DEPARTMENT OF PSYCHOLOGY & PHILOSOPHY  
COLLEGE OF ARTS AND SCIENCES

BY  
VALERIE L. WEED

MAY 2013

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## ABSTRACT

VALERIE L. WEED

### A NATIONWIDE SURVEY OF DISABILITY SUPPORT PERSONNEL REGARDING TRANSITION AND SERVICES FOR POSTSECONDARY STUDENTS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER

MAY 2013

The purpose of this exploratory study was to analyze the perceptions (through survey data) of Disability Support Services (DSS) personnel regarding the transition process for students with Attention Deficit/Hyperactivity Disorder (ADHD) from secondary to postsecondary institutions. Participants from 408 postsecondary institutions completed the survey with 60.4% from public and 39.5% from private institutions, and 66.8% from four-year and 33.2% from 2-year institutions. This study attempted to determine the availability of mental health services, social skills services, academic supports, and activities of daily living services for students with ADHD. Comparisons were made between public versus private institutions, 2-year versus four-year institutions, and across the regions of the United States (e.g., Northeast, West, Midwest, and South). Significantly more four-year and public institutions conducted mental health services at a counseling center. More four-year institutions were likely to provide social skills services. Private institutions were more likely to provide job coaching and peer-mentorship services as social skills services. There were no significant differences

between the overall numbers of social skills, academic, and activities of daily living services offered between the various regions in the United States. These results provide information regarding the perceptions of ADHD by DSS personnel and the availability of services for students with ADHD in colleges and universities across the United States.

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## CHAPTER I

### INTRODUCTION

Attention-Deficit/Hyperactivity Disorder (ADHD) is becoming a common diagnosis among school-age students. Despite the increasing rate of diagnosis, there is still much to be learned about ADHD. The historical perspective and neuropsychological basis lay the foundation for much of the research surrounding ADHD. The developmental trajectory of ADHD from adolescence to adulthood, diagnosis of ADHD, the treatment methods employed, and the effect of ADHD on peer relationships will be explored. Students with ADHD often have additional comorbid disorders that affect their ADHD symptoms and how they are able to function in daily life. All of these areas work together to affect how students with ADHD perform in a classroom setting.

Individuals with ADHD generally have impaired executive functioning skills, and poor academic and social skills (American Psychiatric Association [APA], 2000). Although ADHD is generally conceptualized as a disorder affecting childhood, the symptoms of ADHD have serious implications for adolescence and adulthood. The prevalence of ADHD has increased greatly in recent years. Recent estimates from the Centers for Disease Control (Akinbami, Liu, Pastor, & Reuben, 2011) estimate the prevalence of ADHD to be 10% for children between the ages of 5 and 17 years with the highest rates seen in boys and children living at or below the poverty level.

ADHD affects millions of students in the United States every year. In 2006, 4.5 million children were diagnosed, while in 1997 only 3.3 million children were diagnosed. This is an approximate increase of 27% over 9 years with an average growth of 98,000 students per year (Pastor & Reuben, 2008). In 1999, approximately 3 to 5% of all school-age children had been diagnosed with ADHD (Hanna, 2009). The number of individuals with ADHD graduating and matriculating through college is also on the rise, heightening the need for adequate transition services for these students.

Individuals with ADHD have their share of problems in the classroom. Problems with attention, planning, organization, and impulsivity make the process of learning more difficult for this population of students. A student receiving adequate postsecondary support services will have a more productive experience during the college years; a student without services or accommodations will have a more difficult time in school and risks failing classes and/or dropping out depending on the severity of their ADHD. Transition services are extremely important to help students make the move from high school to college.

### **Statement of the Problem**

Professionals working within secondary and postsecondary education operate under separate policies, laws, and systems of governance. Thus, their systems remain disjointed and effective transition for students can suffer because of the separate governance and policy systems (Kirst & Venezia, 2007). Transition plans should include the student's strengths and weaknesses as a basis, as well as, assessment and evaluation

data (NJCLD, 2010). It is important that students, parents, and education professionals understand the range of accommodations typically offered to students with ADHD at the college level in order to help the students transition smoothly from high school to college.

The drastic increase in children diagnosed with ADHD during the 1990's created a new group of students now approaching college age (Pastor & Reuben, 2008). These students are accustomed to the accommodations and modifications afforded to them under the Individuals with Disabilities Education Act (IDEA) within the secondary school setting. As these students transition into postsecondary institutions the types of accommodations that are available will change. Some of the questions posed by the author will be: Does the type of postsecondary school make a difference for students with ADHD? Will they have better accommodations in a public or private school? Is a four-year or two-year institution a better choice? What accommodations are currently available to students with ADHD within the postsecondary setting?

### **Statement of Purpose**

Professionals within both secondary and postsecondary institutions must be trained to facilitate the transition process for students with ADHD. It is necessary to maximize the resources and time of secondary institutions responsible for writing the transition reports to ensure that these reports meet the eligibility criteria established by postsecondary institutions. It is also essential for secondary level personnel to develop reports that delineate the accommodations that are linked to the diagnosis of ADHD and are appropriate for students at the postsecondary level.

The purpose of this dissertation will be to gather information that could aid school psychology professionals with the transition of students with ADHD between secondary and postsecondary institutions. Another goal of this dissertation will be to describe accommodations that are currently available to students with ADHD within postsecondary institutions. Specifically, what mental health, social, academic, activities of daily living, and general supports are available for students with ADHD. An understanding of the current state of accommodations is necessary for students, parents, and secondary level professionals to effectively advocate for necessary accommodations and to assist student's transition smoothly.

### **Significance of Study**

This dissertation will add to the overall knowledge base in psychology by increasing the awareness of transition services between secondary and postsecondary institutions and highlighting areas of opportunity for communication between secondary and postsecondary personnel. In addition, this study will survey specific accommodations and modifications that students with ADHD can expect to receive as they begin to enter college and university systems.

The specific research questions are:

1. Does institution type (public vs. private) make an impact on the variety/quantity of disability support services offered at postsecondary institutions?

2. Does being a two-year or a four-year institution make an impact on the variety/quantity of disability support services offered at post-secondly institutions?
3. Does geographical region make an impact on the variety/quantity of disability support services offered at postsecondary institutions?

### **Definition of Terms**

The following definitions are provided to ensure clarity of understanding for the purposes of this study:

Accommodation - an adjustment that is made to the environment to allow individuals with disabilities equal access.

Activities of Daily Living - “Adaptive skills, or skills that are involved in coping with the demands of the everyday environment” (Liss et al., 2001, p. 219).

Americans with Disabilities Act (ADA) - Civil rights legislation signed in 1990 that prohibits discrimination against individuals with disabilities.

Disability Support Services - the department on postsecondary campuses that is responsible for determining the eligibility and appropriate accommodations for individuals with disabilities.

Individuals with Disabilities Education Act (IDEA) - a federal law signed in 2004 that helps to guarantee a free and appropriate primary and secondary school education for children ages 3 to 21 years.

Invisible or Nonvisible disabilities - disabilities that are not readily identified by an observer such as learning disabilities, ADHD, psychological disorders, and autism spectrum disorders (Burgstahler, 2008).

Postsecondary school - any education or schooling that occurs after secondary school (high school).

Primary school - also referred to as grade school. Primary school usually encompasses the first 6 to 8 years of a child's education.

Secondary school - also referred to as high school. Secondary school usually encompasses grades 9 through 12. For students in special education, eligibility for services may be extended through 21 years of age.

Section 504 - A section of the Rehabilitation Act of 1973, a federal law that requires postsecondary institutions to provide services and accommodations to qualified students.

Social Skills - the skills necessary to facilitate a positive social interaction that encompasses both verbal and non-verbal communication (Rao, Beidel, & Murray, 2007).

Transition - the process of moving from a secondary educational institution to a postsecondary educational institution.



## CHAPTER II

### LITERATURE REVIEW

While a great deal of literature exists on services provided to students with Attention Deficit/Hyperactivity Disorder (ADHD) at the primary and secondary educational levels, there is a dearth of research regarding disability support services for students with ADHD attending postsecondary institutions. The literature relevant to this dissertation includes: providing background information on ADHD, examining the relevant laws guiding disability support within secondary and postsecondary institutions, describing the transition process between secondary and postsecondary institutions and the current state of postsecondary disability support service organizations, analyzing the diagnostic criteria of ADHD, and highlighting potentially helpful accommodations for postsecondary students with ADHD. Finally, conclusions will be made and the specific research questions will be outlined.

#### **Attention-Deficit/Hyperactivity Disorder**

##### **History and Background**

The first known reference to ADHD was in 1902 by George Still. Still studied what were described as deviant behaviors or hyperactivity in children, primarily boys. During Still's era children with deviant behaviors, which it was then believed they would outgrow, were labeled as imbeciles or immoral (Makris et al., 2007; Rafalovich, 2001; Still, 1902). Still, however, described the children in his study as having symptoms of

aggression, extreme emotion, sustained attention problems, and deficits in inhibitory volition (Myttas, 2001).

The most notable associative feature of students with ADHD was hyperactivity. Stella Chess began a longitudinal study in 1956 as part of the New York Longitudinal Study of Child Temperament. She posited that hyperactivity was its own disorder and the result of overstimulation of the cortical area of the brain (Thomas & Chess, 1957). In the 1960's the disorder was thought to have its root in the brain and was referenced as minimal brain damage or dysfunction. It was not until the 1970's that inattention in children became the focus of research. Deficits of attention were defined as excessive activity, extreme restlessness, impulsivity, and reduced attention span. This new focus led to a more brain-centered study of an attention-based disorder in an effort to determine if a neurological basis existed (Makris et. al, 2007).

A written description of what is now known as ADHD was not available until 1968; it was included in the second edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-II)* as Hyperkinetic Reaction of Childhood (American Psychiatric Association [APA], 1968). ADHD was still in its very early stages of research and scientists were attempting to decipher the causes and residual effects of the disorder. The *DSM-II* refuted earlier claims that brain damage was a precursory condition thus disputing a previous hypothesis made by Chess as part of the New York Longitudinal Study. The *DSM-II* promoted the prevailing belief that the disorder was

developmental (Chess & Thomas, 1996; Mash & Barkley, 2003). The *DSM-II* described ADHD as follows.

308.0 Hyperkinetic reaction of childhood (or adolescence)

This disorder is characterized by over activity, restlessness, distractibility, and short attention span, especially in young children; the behavior usually diminishes in adolescence. If this behavior is caused by organic brain damage, it should be diagnosed under the appropriate non-psychotic *organic brainsyndrome* (q.v.).

(APA, 1968, p. 50)

The most notable associative feature of students with ADHD was hyperactivity. The New York Longitudinal Study (NYLS) commenced in 1956 with 133 children following the children from 3 months of age until they reached adulthood (Thomas & Chess, 1957). In addition to hyperactivity, Thomas and Chess researched nine dimensions of child temperament - activity level, regularity, approach/withdrawal, adaptability, sensory threshold, intensity of reaction, quality of mood, distractibility, and attention span/persistence, across the lifespan (Zentner & Bates, 2008).

Children with Hyperkinetic Reaction of Childhood were thought to outgrow the disorder by adolescence (APA, 1968; Chess, Thomas, & Hertzog 1960; McGough & McCracken, 2006). Later research disproved this hypothesis. More current studies of adolescents and adults have revealed that ADHD is a disorder that can affect persons across the lifespan (McGough & McCracken, 2006). Longitudinal follow-up studies of children diagnosed with ADHD revealed the symptoms of inattention, impulsiveness,

restlessness, and emotional dysregulation attributed to ADHD in children were still prevalent in adults; symptoms of hyperactivity were less obvious in the adult population (Franke et al., 2012). Approximately, 30% - 60% of individuals with ADHD will continue to experience significant symptoms of the disorder throughout adulthood. Barkley, Fischer, Smallish, and Fletcher (2002), examined the persistence of ADHD symptoms into adulthood and found that previous follow-up studies that relied on self-reports may have underestimated the persistence of ADHD into adulthood. This population of individuals is at a higher risk for reduced academic and vocational success (Harpin, 2005).

The prevalence of ADHD diagnoses has experienced an overall 10% increase (Akinbami, Liu, Pastor, & Reuben, 2011). This increase raises questions regarding the possibility that ADHD is being over diagnosed. The concern in the increase in diagnosis has been attributed to the use of criteria that focuses on the most prominent symptoms of ADHD. The most prominent symptoms of ADHD are difficulty with paying attention, hyperactivity, and impulsivity. The three types of ADHD – predominately inattentive type, predominately hyperactive-impulsive type, and combined type are based on these prominent symptoms (APA, 2000). Predominately inattentive type is the category that describes individuals that have difficulty giving or sustaining attention to a task or activity. Predominately hyperactive-impulsive type describes individuals that have difficulty sitting still or that act without thinking matters through. The combined type describes individuals that exhibit characteristics of the inattentive and hyperactive-

impulsive types (APA, 2000). Less prominent symptoms of other disorders, such as oppositional defiant disorder (ODD) and generalized anxiety disorder (GAD), which overlap with ADHD, often result in ADHD becoming the resulting diagnosis (Bruchmüller, Margraf, & Scheider, 2011).

### **Current Standards for Diagnosis**

Numerous studies have been conducted with children and adolescents with ADHD using neuropsychological assessments in an effort to evaluate their performance based on their posited deficits. Willcutt, Doyle, Nigg, Faraone, and Pennington (2005) performed a meta-analysis of studies conducted to measure executive functioning using neuropsychological measures. When the Wisconsin Card Sorting Test, Tower of Hanoi, and Porteus Mazes were administered to individuals with ADHD, the results revealed deficits of executive functioning in response inhibition, working memory, and planning (Brown, 2006; Willcutt et al., 2005). These studies helped to provide support for theories asserting inhibition impairments as a primary facet in deficits of working memory and planning.

**Gender differences.** It has been established that boys and girls display characteristics of ADHD differently, with boys displaying behaviors at a higher rate (Hinshaw, 2002). With this said, it would be plausible that boys and girls with ADHD may experience different developmental issues with ADHD. ADHD is diagnosed at a male to female ratio of approximately 3 to 1. Studies show that girls display fewer behavioral or conduct problems and are less impulsive than boys (Bruchmüller et al.,

2011). Girls are more likely to be diagnosed as predominately inattentive type since girls tend to be less hyperactive, show less aggressive behavior, and are less disruptive in the classroom (Biederman et al., 2002; National Resource Center on AD/HD, 2008).

### **Etiology of ADHD**

As previously noted, earlier studies indicated that ADHD was a childhood disorder that went away with maturity. Klein and Biederman (1999) suggested the Developmental Decay Theory, which posits that ADHD is instead an antecedent of a developing disruptive behavioral disorder that may lead to development of subsequent conditions. ADHD is a function of adversity or rather the maintenance of the disorder in addition to family history and comorbidity. For example, studies show that minor stress has impaired the prefrontal cortex in monkeys (Klein & Biederman, 1999). Adverse situations with related stress increase deficits to the prefrontal cortex already impaired by ADHD (Sullivan & Brake, 2003). Stress experienced by the fetus during the prenatal stage can result in lateralized changes in the prefrontal cortex, as well as hyperactivity in infants. Reduced oxygen supply can produce hypoxic conditions during birth thus increasing the risk of prefrontal cortex impairments (Sullivan & Brake, 2003). Other early stressful adverse factors that may increase risk of prefrontal cortex impairments are social adversity and caretaker environment, such as early abuse or neglect and poor parental attachment (Sullivan & Brake, 2003).

Problems exhibited with inhibition and impulsivity stem from the prefrontal cortex and basal ganglia. These areas work together for efficient inhibition response; the

prefrontal cortex provides interference support from competing information and the basal ganglia prevents inappropriate behaviors (Booth et al., 2005). According to Barkley (1997; 2006), deficits in inhibition will lead to problems of executive function.

Specifically, Barkley (1997) asserted the following regarding inhibition

- (a) inhibition of the initial prepotent response to an event;
- (b) stopping of an ongoing response, which thereby permits a delay in the decision to respond; and
- (c) the protection of this period of delay and the self-directed responses that occur within it from disruption by competing events and responses (p. 67).

Inhibition is the primary facet upon which the other executive functions depend (Barkley, 1997). For individuals with ADHD, an impairment of the development of executive function is the primary foundation for this disorder. Impairment of this function hampers the progression of regulation of emotion and motivation, verbal and nonverbal working memory, and modification of behavior (Brown, 2006).

### **Symptomatology across the Lifespan**

**Early childhood.** During early childhood individuals with ADHD exhibit poor concentration, and higher levels of activity and impulsiveness than the typical child (Harpin, 2005). In primary school, the individual is identified as having difficulty learning successfully, is rejected by peers, and has low self-esteem. Poor sleep patterns exacerbate learning difficulties, and behavior during school hours will be negatively affected (Harpin, 2005).

**Adolescence.** Lezak, Howieson, and Loring (2004) define executive functioning as the set of processes needed for engaging in independent, purposeful, and goal-directed behaviors. Individuals with ADHD are plagued by deficits of executive functioning that affect their ability to handle daily activities successfully due to the immaturity of their prefrontal cortex. The dorsolateral prefrontal cortex, which carries out executive functioning and is the last area of the brain to develop and myelinate, is still developing during adolescence, and does not reach full maturation until early adulthood (Avirett & Mortimer, 2012). Adolescent individuals with ADHD that exhibit anti-social behavior and growing aggression may be developing during this period and have greater deficits in executive functioning (Moffitt & Silva, 1988). Comorbid disorders such as oppositional defiant disorder (ODD) are typical of individuals with ADHD and are characterized by increased defiance, disobedience, aggressive acts, and violations of laws (Harpin, 2005).

Impulsivity and irrational decision-making are characteristic of ADHD.

Adolescence, a developmental period roughly ranging from the age of 11 to 18 years of age (Berk, 2008), is when children are more likely to take risks. The impulsive and irrational decision-making and behaviors of children with ADHD will be heightened during this period, putting them particularly at risk. Smoking, alcohol, drug use, and sexual activity, in addition to greater incidence of addiction and teen pregnancy, have an earlier onset in children with ADHD (Klein & Biederman, 1999). These behaviors are of particular interest as college is a typical period of experimentation for students and the



consequences of these behaviors can have a detrimental effect on academic success in college.

**Adulthood.** Wolf and Wasserstein (2001) posit that executive dysfunction increases in adults with ADHD, but the extent of the dysfunction is unknown as the research surrounding adults has been based primarily on extensions of child-based models that were not properly adapted for adults. Approximately 60% of individuals with ADHD continue to experience related difficulties into adult life (Harpin, 2005). Symptoms of ADHD, such as impulsivity, disorganization, poor planning, and impaired attention, can last throughout the lifespan. Adults with ADHD may find it difficult to arrive to work on time, fail to maintain positive interpersonal relationships with colleagues, and have limited productivity on the job. For example, they often take on too many projects due to problems with self-regulation, and deficits in planning and organization lead them to be unsuccessful (Harpin, 2005; McArdle, 2004). Often, individuals with ADHD are fired from jobs more often or have a higher rate of changing jobs than individuals without ADHD (Barkley, 2002).

### **Other Problems often Associated with ADHD**

#### **Learning Differences and Attention Span**

According to Klein and Biederman (1999), a common comorbidity of ADHD is learning disabilities. While 9% of all college students report some type of disability, learning disability is the most frequently reported (Klein & Biederman, 1999).

Individuals with ADHD have deficits in attentional processes that are related to cognitive

flexibility and psychomotor speed, as well as in sustained attention and accuracy on attentional measures (Klein & Biederman, 1999). Joyce and Rossen assert that individuals with ADHD have deficits in processes requiring attention related to complex decision-making, cognitive flexibility and psychomotor speed, as well as sustained attention and accuracy (2006). In addition to deficits in these areas, students with ADHD have problems with reading due to difficulty with focus and concentration. Subsequent manifestations may include difficulty with mathematics, as related to problems with reading (National Resource Center on AD/HD, 2010).

Unfortunately, like other symptoms of ADHD, cognitive deficiencies are persistent from childhood into adulthood. The intellectual functioning of students with ADHD is affected by the characterizing symptoms of ADHD – inability to sustain or shift attention and memory deficits (Wolf, 1999). Executive functioning impairments also contribute to lack of academic progress because of the student's impaired problem solving skills, poor planning ability, cognitive inflexibility, and poor time management and organization skills. As these students progress from one grade to the next, the required cognitive demands, for example the level of critical thinking required, increase making the completion of school a much more daunting task (Wolf, 1999).

**Academic skills.** Reading and math are the primary academic areas where students with ADHD have impairments. If their school and psychological records were reviewed, students with ADHD exhibit academic deficits, which are reflected as poor academic performance and an inability to complete class and homework assignments

(Loe & Feldman, 2007). These students would most likely show higher rates of repeated grades, and a greater need for tutoring, pullout classes, special education classes, and accommodations (Loe & Feldman, 2007).

Students with ADHD have problems with reading due to difficulties with focus and concentration (National Resource Center on AD/HD, 2010). A study conducted by Willcutt et al. (2010) showed that students with ADHD also have processing speed deficits that can be influenced by a shared gene that results in an increased risk for a comorbid reading disability. ADHD and reading disabilities have respective cognitive deficits that are indicative of each other. For example, ADHD involves deficits in control of inhibition, and a reading disability involves weakness in the areas of working memory, phoneme awareness, and verbal reasoning (Kibby & Cohen, 2008; Minear & Shah, 2006). A greater demand for reading is required as students progress in school and students with ADHD will have greater difficulty with class and homework assignments that have a heavy reading component. Willcutt et al. (2010) suggested that their class assignments have a reduced reading requirement paired with providing oral instruction in class; homework assignments should also have a reduced reading requirement.

Students with ADHD often have a comorbid math learning disability. These students have deficits with processing speed of math problems and their ability to complete math assignments. In addition, problems with attention, working and spatial memory, and executive functioning can also be associated with a math disability (Barry, Lyman, & Klinger, 2002; Geary, 2005). Modifications of class assignments requiring

reading and math would be beneficial for students with ADHD that have these comorbid disabilities. Secondary professionals handling the academic plans for students with ADHD with comorbid math and/or reading disabilities, should be mindful of this when helping students choose classes and possible career paths.

**Executive function.** Tasks of executive functioning pose a challenge for individuals with ADHD. Tasks requiring a level of diligence, self-control, self-evaluation, decision-making, and goal setting for success in postsecondary education will be more difficult for individuals with ADHD (Troiano, Liefeld, & Trachtenberg, 2010). Significant dysfunction in the areas of planning and organization has negative consequences for students in postsecondary institutions due to the increased demand for planning and organizing assignments (Cornoldi et al., 2001). For students with ADHD that struggle with planning and organization, keeping track of classes, assignments, and exams, and organizing their notes will be difficult tasks. Tutoring or coaching in academic skills, taking notes, and developing study skills will be beneficial for these students (Cornoldi et al., 2001).

**Working memory.** Impaired executive functioning affects one's ability to sustain attention and remember and recall details, as well as the capacity to communicate information in detailed, organized, and sequential manner (NCLD, n.d.). Weaknesses in executive functioning can be linked to weaknesses in working memory. Studies conducted by Cornoldi et al. (2001) revealed working memory deficits are related to problems of interference due to limited sustained focus in individuals with ADHD.

These deficits will affect the facilitation of memorizing and retrieving information (NCLD, n.d.).

As a result of impaired executive functions, tasks requiring working memory pose a challenge for individuals with ADHD (Brown, 2009). Deficits in working memory may be exhibited as a struggle to retain material that had just been read or information that was just communicated (Brown, 2009). The process of holding and manipulating information for a short period prior to executing an action is also impaired.

Comprehending what is read becomes very difficult for individuals with ADHD as well (Mahone, n.d.). Dysfunction in working memory has particular implications for students in postsecondary institutions because of the significant emphasis placed on an individual's ability to process and comprehend longer and more complex reading material (Trainin & Swanson, 2005).

Postsecondary students with ADHD and working memory deficits will experience greater difficulty learning new material. They will require significantly more time to complete assignments and tests due to processing difficulties (Trainin & Swanson, 2005). For students with ADHD, lectures will seem confusing and their notes may lack cohesion. Lectures will have a reduced benefit for these students and their notes may reflect their reduced comprehension due to intervals of inattention and working memory dysfunction. Students with extreme working memory deficits will require accommodations, including a scribe to take notes, a written copy of the teacher's notes, the ability to tape lectures, and additional time for taking tests (Joyce & Rossen, 2006).

## **Language Impairment**

Another common comorbid disorder for children with ADHD is language impairment (LI). The research regarding the connection between ADHD and LI is limited because LI has been more commonly related as a comorbid disability to reading disabilities (Cohen, 2001, p.85; Cohen et al., 2000). Problems with verbal and nonverbal tasks have been observed in children with LI and ADHD (Cohen et al., 2000). In addition, students with ADHD and comorbid LI have been shown to have problems with inhibitory control and severe intellectual impairments (Loe & Feldman, 2007). When children with ADHD are compared, girls have higher rates of speech language disorders and more compromised intellectual abilities than do boys (Barkley, 2003).

Working memory is verbally laden and presents as a deficit in LI, as well as ADHD (Cohen et al., 2000). Students with LI typically have deficits in working memory that are also apparent when information is presented nonverbally. Working memory is essential for learning and language is an integral factor in this process. According to Cohen et al. (2000), language, specifically self-directed and receptive verbal language, is essential for developing working memory. Language coupled with working memory is necessary for a student to mentally organize plans, goals, and thoughts, as well as provide verbal responses to instructions and rules. Students must be able to retrieve this information at a later time, organize the information in their thoughts, and verbally express the information efficiently (Cohen et. al, 2000).

## **Anxiety and Depression**

Persons diagnosed with ADHD often have comorbid mood, conduct, and substance abuse disorders (Wolf, 1999; Young, 2009). The most common co-morbid conditions for adolescents and young adults with ADHD are anxiety and depression (Klein & Biederman, 1999; McGough et al., 2005). Individuals with ADHD are particularly vulnerable to anxiety, which can be brought on by the stress, worry, and changes in routine that accompany transitioning to postsecondary schools (McGough et al., 2005). As stressors increase, the student may exhibit unhealthy levels of loneliness, nervousness, and excessive worrying (Wright, 1967).

Significant rates of major depressive disorder have been reported among males with ADHD (Klein & Biederman, 1999). Students that suffer with depression are twice as likely to drop out of school and the majority of students dealing with depression have lower grade point averages. Students suffering from anxiety and depression are also at an even greater risk of dropping out of school (University of Michigan, 2009). Girls have significantly higher rates of comorbid depression; boys have lower rates of depression, however, depression is more likely with a comorbid conduct disorder and the presence of other disorders (Burke, Loeber, Lahey, & Rathouz, 2005).

## **Sleep Problems**

Children and adolescents with ADHD very commonly experience difficulty with dyssomnia, the act of initiating and maintaining healthy sleep. Studies have shown that daytime sleepiness resulting from insufficient sleep can affect attention and learning

(Breus, 2010). Corkum, Tannock, Moldofsky, Hogg-Johnson, and Humphries (2001) found that children with ADHD share a similar cognitive, behavioral, and emotional profile with children and adolescents suffering from sleep deprivation. Both groups experience difficulties on tests of executive functioning; exhibit problems with attention, impulsivity, and restlessness; and have difficulty regulating their emotions. Therefore, treating insomnia in children with ADHD may not only improve sleep, but could potentially improve ADHD symptoms as well.

Moving to a postsecondary institution may exacerbate sleep problems (Muenke, 2011). Common experiences of college students include sharing a dorm room. Navigating the new social environment and attempting to gain healthy sleep will be a challenge for students with ADHD. Providing students with an outline of what to expect in living with a roommate, giving the student the ability to room alone, and providing access to “quiet dorms” with strictly enforced quiet hours may help the student with ADHD develop healthy sleep routines (Muenke, 2011).

### **Eating Disorders**

Adolescence is a period of physical changes that can be difficult for boys and girls; however, body image disorders are more common in girls than in boys and can lead to eating disorders, which are also more prevalent among girls than boys. Due to the impulsivity of ADHD, girls may be at increased risk for developing an eating disorder. As the majority of research on ADHD has been focused on boys and eating pathology is most commonly found in adolescent girls, there has not been extensive research



regarding a correlate between eating pathology and ADHD. Mikami, Hinshaw, Patterson, and Lee found that girls diagnosed with the combined type of ADHD were at a greater risk to exhibit symptoms of bulimia nervosa during adolescence (2008). Mikami et al. studied a clinical sample of 228 girls aged 5 to 12 with ADHD. In addition to higher risk for bulimia nervosa behaviors, they found that girls with ADHD combined subtype are at higher risk for body dissatisfaction during adolescence and that impulsivity was a key factor in predicting eating pathology in adolescence.

Holtkamp et al. (2004) studied overweight and obesity in a clinical sample of 97 boys ages 5.5 to 14.7 with ADHD. They found that while ADHD is characterized by hyperactivity and tests have shown that these students are moving on average more than students without ADHD, it is not indicative of averting being overweight. Stimulant medications with anorexic side effects were not found to counteract overweight in a portion of the sample. Holtkamp et al. found correlations between conduct disorder in adolescence and overweight, and between oppositional defiant disorder and obesity. It was posited that impulsivity linked with conduct disorder may play a role in overweight and obesity (Holtkamp et al., 2004).

### **Conduct Problems**

Conduct disorder, characterized by a significant pattern of rule-breaking behavior, is prevalent among students with ADHD. Conduct disorder tends to be gender specific with boys and girls exhibiting rates of 22% and 8% respectively (Klein & Biederman, 1999). Unfortunately, conduct disorder among students with ADHD can have extremely

negative outcomes. Students with ADHD have higher rates of school expulsion and suspension (Loe & Feldman, 2007), significantly higher arrest rates that stem from aggressive offenses, higher conviction rates, and higher rates of recidivism. The prevalence of juveniles with ADHD in the justice system is 3 to 4 times higher than the percentage of students with ADHD in the general population. Eme reported that approximately 25% or more of all juveniles in the justice system have ADHD (2008).

Impulsivity and poor-decision making, which are characteristic of ADHD, contribute to high rates of conduct issues (Klein & Biederman, 1999). As students with ADHD, especially those from lower SES backgrounds, enter adulthood there is a risk of comorbid antisocial personality disorder. Individuals with comorbid antisocial personality disorder have higher risks of substance abuse and difficulty sustaining long-term relationships (Dalsgaard, 2002; McArdle, 2004).

### **Substance Abuse**

Individuals with ADHD report higher levels of substance abuse (Young, 2009) and increased levels of depression and anxiety are often related to substance abuse (Burke, Loeber, Lahey, & Rathouz, 2005; Jacob, 2008). Individuals with ADHD tend to feel more emotionally disconnected or isolated, and anxiety may reduce the degree of social interaction and involvement on the part of the individual with ADHD. Adolescents that are shy and/or socially isolated and who have difficulty with impulsive behaviors are at a higher risk for drug abuse (Sanders, 2000).

Alcohol use and dependence has been associated with neuropsychological deficits. In addition to alcohol, marijuana usage is common not only among postsecondary students, but specifically among postsecondary students with ADHD (Aria & DuPont, 2010). Experimentation with drugs and alcohol is common on college campuses (Burke, Loeber, Lahey, & Rathouz, 2005). Researchers believe high rates of cigarette smoking in students with ADHD are an attempt to self-medicate. The act of smoking activates the nicotine receptors that release dopamine (Klein & Biederman, 1999). Adolescents and adults that self-medicate typically have a preference for drugs over alcohol and a higher rate of smoking (Wilens, 2006). Marijuana can have residual effects on executive functioning and attention; further depressing already weakened cognitive skills and putting this population of students at risk for academic failure (Wolf, 1999).

### **Social Skills Deficits**

Individuals with ADHD that transition to postsecondary education have increased difficulty adapting to the social aspects of college life. Socially, individuals may struggle with a delay to respond when making the decision to speak or increased negativity in social exchanges (Barkley, 1997). Inhibiting behaviors is more difficult for individuals with ADHD, due to impaired executive functioning in the prefrontal cortex (Barkley, 1997). A reduced ability to control behavior and regulate emotions may be seen in impulsive, easily frustrated, or emotionally reactive behavior (Hoza, 2007). In the classroom, a student with ADHD may be more prone to disruptive and aggressive

behaviors. According to Barkley (1997), individuals with ADHD and a reduced ability to regulate their behaviors are not lacking knowledge about what to do; rather, they do not understand how to apply acceptable behaviors in varied social situations. Ongoing redirection and instruction on self-regulation will be necessary for individuals with ADHD. The attention and organizational difficulties experienced by individuals with ADHD would likely prohibit them from fully accessing the major life activities inherent in the postsecondary experience, such as the ability to adapt to change (Marshak et al., 2010).

### **Deficits in Adaptive Skills**

Activities of daily living include personal and domestic skills such as dressing, personal hygiene, performing household tasks, managing finances, and spending leisure time (Lee & Park, 2007). Weiss, Hechtman, and Weiss (1999) assert that the degree of impairment of activities of daily living is underestimated. Parents in a study by Lee and Park rated activities of daily living the third strongest discriminator of adolescents with ADHD when compared to children without ADHD or learning disabilities (2007). These results substantiated the need for emphasizing functional impairment in routine, daily activities that are important to success in school, and interpersonal relations (Harrison, Vannest, & Reynolds, 2010). Individuals with ADHD in college would benefit from support services that include helping them develop support strategies, establish supportive relationships, deal with ADHD symptoms and comorbidities, and improve performance of activities of daily life (National Resource Center on AD/HD, 2010).

## **Laws Governing Education of Individuals with ADHD**

### **Individuals with Disabilities Education Act**

The Individuals with Disabilities Education Act (IDEA) guarantees students with disabilities a free, appropriate public education by all schools receiving federal funds. In November 1975 President Gerald Ford signed into law the delivery of federal funds to states for the development of policies that adequately define the provision of free appropriate public education under PL 94-142 (ED.gov, 2007). Prior to 1975 schools were not required to meet the needs of students with disabilities by providing an education or more specifically an education to meet their unique needs (Boser, 2009). The future of many students was less than promising. Many persons with mental disorders or intellectual disabilities were living in or remanded to state institutions (ED.gov, 2007). IDEA ensured that the education received by students with disabilities was comparable to the education being provided to students in general education (Boser, 2009). The act was reauthorized December 3, 2004 as the Individuals with Disabilities Education Improvement Act PL: 108-446, which makes provisions for federal funding for special education and passes the authority to provide free and appropriate public education in the least restrictive environments (LRE) to state governments (NASP, 2005).

Under IDEA students with ADHD can be served in special education under the disability category Other Health Impairment (OHI). IDEA defines OHI as having limited strength, vitality, or alertness, including a heightened alertness to environmental stimuli, that results in limited alertness with respect to the

educational environment

- (i) Is due to chronic or acute health problems such as asthma, attention deficit disorder or attention deficit hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, sickle cell anemia, and Tourette syndrome; and
- (ii) Adversely affects a child's educational performance.

(34 Code of Federal Regulations §300.8(c)(9))

Students with ADHD are the highest prevalence of disorders in this category (ProjectIDEAL, 2008). Special education programs report the numbers of students ages 3 to 21 served by type of disability each year. During the 1976-1977 school year, 141,000 students were being served in special education under the disability category of OHI (National Center for Education Statistics [NCES], 2011). That number increased to 689,000 during the 2009-2010 school year. The percentage of students with an OHI served through special education increased from 3.8 percent in 1976-1977 to 10.6 percent in 2009-2010 (NCES, 2011). Based on the significant increase in these rates, more students with ADHD are seeking access to special education services.

The number of disabled students receiving IDEA services enrolled in postsecondary institutions has increased. In fact since 1978 this percentage has tripled. According to DuPaul, Weyandt, O'Dell, and Varejo, approximately 25% of all students enrolled in college have been diagnosed with ADHD (2009). The increase in students with disabilities attending college has made the provision of services more important,

specifically for the transition of students receiving IDEA services from secondary to postsecondary.

Support for postsecondary school goals made it possible for IDEA services to include transition services for secondary students. Amendments to IDEA included mandates that every student receiving services under IDEA have a transition plan as part of their Individualized Education Program or Plan (IEP) that clearly communicates the student's post high school goals, the plan to achieve said goals, and a responsibility matrix (USDOE, 2007). The IDEA amendments that endorse the postsecondary transition plan, however, are geared toward helping students live on their own and discover a vocation. IDEA does not include specific wording that clearly communicates the steps for transitioning to postsecondary education and does not include the steps to apply for campus services and/or accommodations.

Since a number of students with ADHD at the secondary level receive services, it is especially important to provide these students with the tools that would allow them to continue to be eligible for services when they matriculate to postsecondary institutions. A study of postsecondary institutions revealed that 45% of respondents required testing to be more recent than 3 years old for consideration of services (NJCLD, 2007). This disconnect between the transition reports provided by the secondary institution and the requirements of the postsecondary institution can force students to seek outside testing to become eligible for services.

### **Americans with Disabilities Act and the Rehabilitation Act of 1973**

The criteria covered under the Americans with Disabilities Act (ADA) require a person to “have a physical or mental impairment that substantially limits a major life activity” (ADA Amendments Act of 2008, PL 110–325, Sec. 4). The substantial impairment is operationalized as “one that significantly limits or restricts a major life activity such as hearing, seeing, speaking, walking, breathing, performing manual tasks, caring for oneself, learning or working” (U.S. Equal Employment Opportunity Commission, 2005, par. 6). Under ADA, ADHD qualifies as a mental impairment.

As secondary students transition to postsecondary institutions, the laws governing their access to education changes from IDEA to the ADA and Section 504 of the Rehabilitation Act. IDEA no longer has jurisdiction over educational access once the student exits the secondary system. The ADA covers public, private, community, and vocational institutions. Additionally, Section 504 covers any institution that receives federal funding. For most postsecondary schools, there is not a practical difference between the ADA and Section 504; the significance is only that private schools receiving no federal funding are covered under Title III of the ADA. Private schools are mandated to provide equal access to educational materials but their standard of burden is reduced because they are not the recipients of federal funding (Gregg, 2009; Leuchovius, 2003; Marshak, Dandeneau, Prezant, & L’Amoreaux, 2010).

There is, however, a fundamental difference between the purpose of IDEA and the ADA/Section 504. IDEA mandates a free and appropriate education for students with



disabilities, with the goal of maximizing educational potential. The ADA/Section 504 are civil rights laws concerned with access and nondiscrimination for individuals with disabilities. Specifically, the ADA/Section 504 ensures that any person with a disability that meets stated qualifications cannot be discriminated against because of their disability.

Under the ADA/Section 504, the student is required to self-identify as an individual with a disability and provide appropriate documentation to the Disability Support Services (DSS) office on campus. If the documentation provided is not deemed acceptable by the institution, the student bears the financial burden to obtain another evaluation. Accommodations are determined by the DSS office to provide students with equal access to the institution's programs and activities (Differences between, n.d.; Gregg, 2009). Unlike secondary institutions, students within postsecondary institutions have typically reached the age of legal maturity. This means that students are now responsible to act and advocate on their own behalf.

Unlike secondary educational institutions, postsecondary educational institutions are not obligated to conduct or pay for evaluations to validate the student's disability. The cost of acquiring appropriate documentation for a disability can hinder students without sufficient financial supports from accessing legally mandated accommodations (VA HELP, 2007). School districts serving large populations of economically disadvantaged students are often unable to provide non-mandated evaluations (NJCLD, 2007). Parents and students who are economically disadvantaged will find the additional

expense of financing an outside evaluation a financial hardship. The inconsistency of services across schools, districts, states, and regions poses a social justice issue in that students who are unable to pay for additional testing are likely to be denied services within postsecondary settings (NJCLD, 2007).

Students burdened with the financial responsibility of having additional evaluations performed will likely need additional access to financial aid to help with the costs of postsecondary education. Important provisions for students with intellectual disabilities accessing postsecondary institutions were included in the Higher Education Opportunity Act of 2008 (HEOA). “Pell Grants, Supplemental Educational Opportunity Grants, and the Federal Work-Study Program” allow students with intellectual disabilities to access postsecondary education through HEOA (Smith, 2009, p. 1).

Universities are not required to establish a uniform delivery of services to all students under the ADA and Section 504 (Pingry, 2007, as cited in VA HELP, 2007). While this allows for flexible delivery of services tailored to the needs of the individual, the lack of specific criteria can create unnecessary barriers for students in advocating for their needed academic accommodations (Pingry, 2007, as cited in VA HELP, 2007). Offered services are not standardized across postsecondary institutions. The depth and quality of services may also differ between postsecondary institutions. One institution may interpret the governing codes to provide academic accommodations in a manner that another institution may not consider appropriate.

## **Challenges for College Students with ADHD**

The ability to set and achieve goals, initiate tasks, plan, organize and manage time, attend, control emotions and social behaviors, and self-monitor is required of students matriculating to postsecondary institutions. Unfortunately, as previously noted, these skills are compromised in individuals with ADHD. Additionally, cognitive flexibility (the ability to switch between tasks) is also compromised (Avirett & Mortimer, 2012; Brown, 2003, Etchepareborda & Mulas, 2004). As they continue their educational careers, many students with ADHD struggle due to the cognitive demands of the material and the required level of critical thinking expected, as well as the increased preparation required to complete school-related tasks (Wolf, 1999). Expectations for time management, planning, reading, and note-taking skills can be difficult to achieve for students with ADHD.

Developmental traits of ADHD often remain “hidden” until college when students go away to school and are no longer under the close care and supervision of overprotective parents (Brown, 2003; Meaux, Green, & Broussard, 2009; Wolf, 1999). Accessing services is especially difficult for students with ADHD because they have an invisible disability that is not immediately evident to outside observers (Burgstahler, 2008). As a result, these students are forced to assume the role of advocate their parents previously shouldered while trying to manage their academic studies.

Individuals with ADHD are more resistant to change, making periods of transition especially critical. The difficulty of making transitions is exacerbated by their inability to

successfully manage the related stress. Adapting to new situations is not a strength possessed by individuals with ADHD (Brown, 2003). Reduced cortisol levels as a response to stress are related to a reduced ability to inhibit behavior (Kariyawasm, Zaw, & Handley, 2002). Vance, Silk, and Cunnington (2007) reported that children with ADHD are hindered in their ability to appropriately cope with stressors. Their manner of coping is to manage the situation in the simplest fashion, which may be exhibited as anxiety, aggression, or oppositional behaviors (Vance et. al 2007).

The required demands of collegiate level curriculum increase as the student transitions from secondary education. A major part of this increase is related to the increase in the cognitive requirements of assignments and the amount of planning required to complete assignments on the collegiate level. Individuals with ADHD typically have average cognitive ability, but have reported difficulty with the academic demands of college. Additionally, these individuals often struggle with managing the social aspects of college. Since IDEA has conditions for much more robust academic accommodations, students transitioning to postsecondary institutions often find that the array of services that are available are vastly more limited. Vickers (2010) researched the level of postsecondary accommodations provided to students with ADHD and found that education budget cuts and controversy centering on accommodation of students with disabilities may make receiving the most basic of services difficult.

The postsecondary setting will necessitate the student's development of independent living skills, but they may no longer be entitled to resources to aid in the

acquisition of these skills (i.e., social skills training, life skills coaching). Without the substantial supports and accommodations received at the secondary level and required for successful integration into postsecondary education, the student may ultimately be in serious jeopardy (Morrison et al., 2009).

The complexities of transition are augmented by the requirements of postsecondary institutions to determine services eligibility and appropriate accommodations designations. Postsecondary institutions have requirements that stipulate the documentation required from secondary institutions. In order to achieve a seamless transition between secondary and postsecondary settings, secondary personnel will need to have a better comprehension of postsecondary institutions' standards for the necessary documentation, as well as the specific verbiage to support the need for specific accommodations. It is imperative as transition meetings commence in secondary school that school personnel educate and caution students that the academic accommodations available are limited in comparison to what was available in the secondary school setting.

Students who have become accustomed to comprehensive instruction in a special education environment or who have received individualized accommodations in a regular classroom are likely to struggle in a less structured environment with the increased challenges that come with the higher education environment (Vogel, 1993). Students with disabilities require special support in order to integrate academically and socially into college life (Kowalsky & Fresko, 2002).

Often, students that have transitioned to postsecondary institutions believe they have outgrown their ADHD diagnosis. Unfortunately, they do not initiate postsecondary services and therefore do not have the needed supports for academic success. This may later lead to one or more social emotional issues (National Resource Center on ADHD, 2010). For example, a student with ADHD that is without services may become overwhelmed with the heavy course load or with managing the demands of multiple classes and begin to have high levels of frustration, confusion about their goals, lack of perseverance, and lack of sleep. Troiano et al. (2010) conducted a study with 262 learning disabled students to investigate the connection between learning supports and college success. Students who sought out learning supports and were consistent with the continuity of support had higher grade point averages and graduation rates than those who did not (Troiana et al., 2010).

### **Provision of Services**

The number of students with ADHD in secondary schools is increasing every year, which translates to an increase in the number of students with ADHD enrolling in postsecondary institutions every year. The growing number of students and prevalence of students with ADHD has heightened the need for adequate special education services. “As the graduation rates for children with disabilities continue to climb, providing effective transition services to promote successful post-school employment or education is an important measure of accountability for children with disabilities” [Statute 2651 (14), IDEA(2004)].

## **Transition Challenges**

Times of transition are especially critical in the lives of students and their families. Stress is a normal component of transitioning to postsecondary institutions and adulthood; however, the amount of stress for individuals with ADHD is compounded by significant difficulties in managing attention, planning, and organization effectively and adapting to new and changing routines (Gregg, 2009). Often parents and students make the incorrect assumption that the services they have been granted under the direction of their IEP or 504 plan will be transferred and continued to postsecondary level education (Marshak et al., 2010).

The responsibility for accessing services reverts to the student with the transition to postsecondary education. Parents are no longer able to legally assume the lead role as an advocate for their child. At the postsecondary level, delivery of any services by the university is contingent upon students assuming the responsibility to act on their own behalf to initiate the request for services (Joyce & Rossen, 2006). Furthermore, because the Family Educational Rights and Privacy Act (FERPA, 2008) guarantees confidentiality, students must sign documents releasing the university to speak with their parents.

Adding to the challenges of transition are the requirements by postsecondary institutions to determine eligibility for services and designate appropriate accommodations. Dedicated secondary personnel seeking to facilitate smooth and effective transitions between high school and college settings will need a greater

understanding of what is necessary to document a disability to meet the eligibility requirements for postsecondary institutions because the required documentation is different from that used in secondary evaluations (Joyce & Rossen, 2006). It is extremely important for the student to have the proper documentation when applying for services at a postsecondary institution (Marshak et al., 2010). Many universities are increasing their academic requirements and students with ADHD may not be able to meet the new higher academic requirements (Vickers, 2010).

### **Lack of Clear Criteria**

The services offered to students on the postsecondary level vary across postsecondary institutions. Under the ADA/Section 504, universities are not required to establish a uniform delivery of services to all students (Pingry, 2007, as cited in VA HELP, 2007). While this permits flexible delivery of services that can be tailored to the individual, the absence of explicit criteria can produce barriers for students advocating for needed academic accommodations (Pingry, 2007, as cited in VA HELP, 2007). Consequently, the breadth and quality of services may differ between postsecondary institutions. One institution may interpret the governing codes to provide academic accommodations in a manner that another institution may not consider applicable.



## **Disability Support Services**

The ADA (1990) defines a disability as an impairment that substantially limits a major life activity. One-third of postsecondary students receiving disability support services have a learning disability as determined in a study of 108 college students (Kurth & Mellard, 2006). In the study, the most effective accommodation (87.5% reported effective) was note takers followed closely by extended time on tests (85.7%). The researchers concluded that the culture of the university affects the satisfaction that postsecondary students feel when accessing services; specifically, institutions embracing the “spirit of the law” (p. 81) governing disability services have more satisfied and integrated students (Kurth & Mellard, 2006). The National Alliance on Mental Illness (NAMI; 2013) suggests the following accommodations for postsecondary students with ADHD:

- arranging for priority registration;
- reducing course load;
- substituting one course for another;
- allowing note takers and recording devices;
- allowing extended time for testing;
- extending deadlines for assignments;
- tutoring (sometimes the disability resource center can match you with a tutor according to your individual needs);
- mentoring;

- providing study skills training; and
- offering an individual room for taking exams.

Joyce and Rossen (2006) recommend the following list of postsecondary accommodations for students with learning disabilities, which are comorbid for the majority of students with ADHD:

- extra time for testing
- separate quiet room with proctor
- intermittent breaks for fatigue
- priority seating in classroom
- longer response time for questions
- environmental changes
- copies of lectures
- enlarged print
- advance copy of syllabus
- priority registration
- tutoring
- mental health support groups

Narrow interpretations of the ADA/Section 504 as discussed above would imply that accommodations would be limited to those that allow for equal access to the educational material. However, some primary and secondary institutions conduct social skills groups and trainings within the educational system in an attempt to provide

students with ADHD access to the entire educational experience. Social encounters are major life activities, as they occur daily. The progression of academic achievement may be the primary goal of postsecondary institutions, but it is not the only goal as Glennon (2001) suggests. Additional goals should include, “developing skills for adulthood, forming life-long relationships, identifying a vocational pathway, and/or participating in extracurricular activities” (p. 185).

### **Conclusion**

Students with ADHD entering into postsecondary institutions will have significant social, academic, communication, activities-of-daily living, and mental health needs from disability support service organizations. The transition process from secondary to postsecondary institutions will be especially stressful and challenging for these students. In order to gain from the full experience of attending a postsecondary institution, these individuals will need significant academic and social supports.

It is essential that personnel from both secondary and postsecondary institutions coordinate their actions to facilitate a smooth transition between educational environments. To further the understanding between secondary and postsecondary support personnel, it is important to determine what eligibility documentation is acceptable to postsecondary professionals. In addition, it is vital to gather a greater understanding of the services that are currently delivered to students with ADHD at the postsecondary level. Having an understanding of the current services will enable students with ADHD (and professionals in the support of students with ADHD) to

advocate for an appropriate expansion of services to ensure adequate access to postsecondary education.

### **Research Questions**

The importance of this research will be to provide professionals and parents a better understanding of the goals of transition plans and services in order to provide students with ADHD the supports they need to obtain a solid postsecondary education that will successfully carry them into life after graduation. The following questions will be examined with the goal of helping students with ADHD make informed decisions when choosing postsecondary institutions.

1. Does institution type (public vs. private) make an impact on the variety/quantity of disability support services offered at postsecondary institutions?
2. Does being a two-year or a four-year institution make an impact on the variety/quantity of disability support services offered at post-secondly institutions?
3. Does geographical region make an impact on the variety/quantity of disability support services offered at postsecondary institutions?

## CHAPTER III

### METHODOLOGY

The intent of this exploratory study was to analyze the responses of a survey of postsecondary Disability Support Service (DSS) personnel from two-year and four-year, public and private institutions regarding the transition process and services available for students with Attention-Deficit/Hyperactivity Disorder (ADHD) as they move from secondary to postsecondary institutions. The survey was conducted by students at a university in northern Texas and was approved by the university's Institutional Review Board.

#### **Study Design**

The data analyzed in this study was obtained from a survey of DSS personnel in the United States. Item responses were used to address questions about the transition process and the services available for students with ADHD at postsecondary institutions. As this was an exploratory survey, research questions were used instead of a directional hypothesis.

#### **Participants**

The participants in the current study were DSS personnel who are employed by two- and four-year institutions across the United States. Solicitation emails were sent to 3,215 postsecondary institutions of which 1,143 were two-year institutions (35%) and 2,072 were four-year institutions (65%). Additionally, 38% of the institutions were public and 62% were private.

## **Procedures**

For the original data collection, a nationwide list of all two-year and four-year institutions was gathered by visiting the University of Texas' list of regionally accredited postsecondary institutions at <http://www.utexas.edu/world/univ/state/> (for the four-year institutions) and <http://www.utexas.edu/world/comcol/state/> (for the two-year institutions). Next, email addresses for DSS personnel were compiled.

A research team of trained undergraduate and graduate students visited the website for each postsecondary institution and searched for the DSS department, using the terms “disability,” “student services,” “disability services,” “academic support,” “Americans with Disabilities Act,” and “Section 504.” If there was no email address on the DSS website, then a search of the faculty directory was performed on the individual's name. Of the 3,215 postsecondary institutions listed, email addresses for 2,607 DSS personnel were found (81%). If the email address could not be found, a member of the research team telephoned the institution and requested the contact information for the DSS office. Of the remaining 608 institutions, 264 email addresses were found using this technique.

After the email addresses were compiled, DSS personnel were sent an email with a hyperlink to the survey. Participants who clicked on the hyperlink were taken directly to the survey, which was hosted by [www.psychdata.com](http://www.psychdata.com). The survey was encrypted using Secure Sockets Layering (SSL) to protect the confidentiality of the participants.

A consent document was on the first page of the survey, and only participants who acknowledged the consent form gained access to the survey. After survey completion, participants were directed to a separate survey asking if they wished to enter a drawing for three Amazon.com gift cards valued at \$250 each. This personally identifying data was collected and stored separately from the original data. The current study used a subset of the data collected in the original survey regarding the topics of transition, attitudes towards ADHD, and services available to students with ADHD.

Two reminder emails were sent after the initial solicitation email. The first reminder email was sent two weeks after the initial email. The final reminder email was sent to participants three weeks after the initial solicitation email. The final reminder email informed participants that they had two more weeks to participate in the survey. The final date of survey availability was May 21, 2010.

## **Instrumentation**

### **Questionnaire**

The Survey of DSS Personnel regarding Transition and Support Services for Postsecondary Students was developed by a research team made up of trained graduate students and their faculty advisor. It contained items regarding: attitudes of DSS personnel towards students with disabilities (e.g., Autism Spectrum Disorders, Learning Disabilities, Traumatic Brain Injuries, and ADHD); common practices of DSS institutions regarding the transition, eligibility, and accommodation process; and, available services for these students within the postsecondary system. The final page of

the questionnaire solicits feedback, demographic information, and any additional comments the participant would like to share.

For this dissertation, 20 items from the survey were used, and these items were divided into three broad categories. The first category included questions concerning attitudes of DSS personnel towards individuals with ADHD. The second category included questions concerning common practices during the transition process between secondary and postsecondary institutions. The final category gathered information regarding services commonly available for students with ADHD within the postsecondary setting. There were a variety of item types in the survey including yes/no questions, single selection questions, multiple response questions, 5-point Likert scale questions, and free response questions. The specific questions that were used for this dissertation are listed in the appendix of this dissertation. The purpose of the original survey was exploratory with the intent to gather information. Thus, there is no information regarding reliability and validity of the instrument.

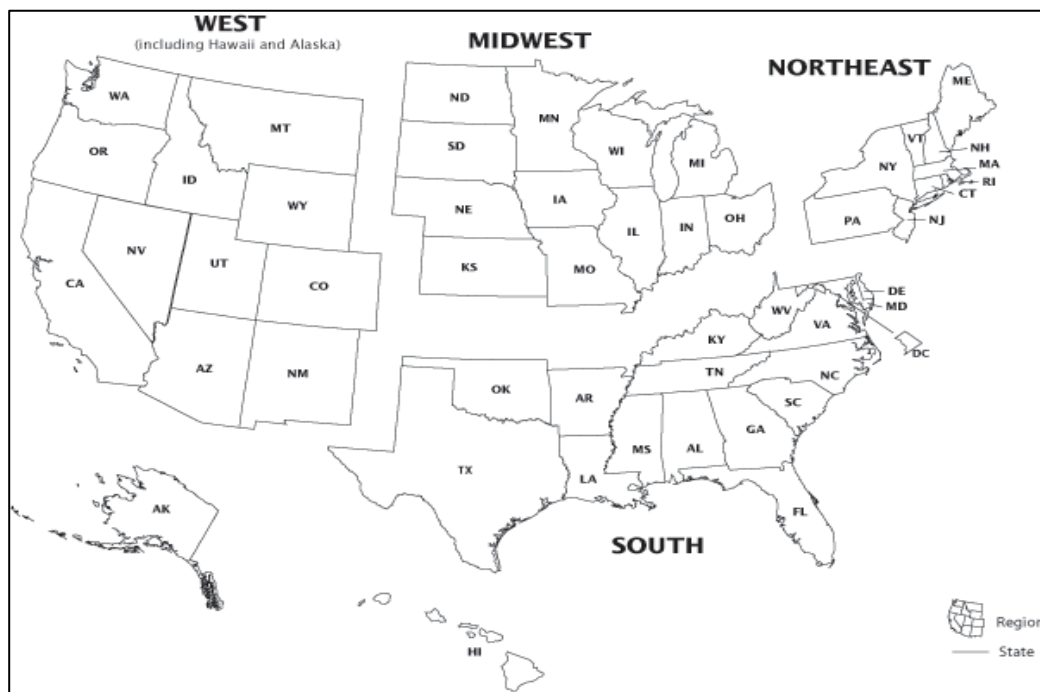
### **Research Design and Analysis Plan**

#### **Research Questions**

Since this is an exploratory study and there is a lack of research in the area of transition services for students with ADHD, specific literature-based hypotheses are not possible. Therefore, several research questions will be examined:



1. Does institution type (public vs. private) make an impact on the variety/quantity of disability support services offered at post-secondary institutions?
2. Does being a two-year or a four-year institution make an impact on the variety/quantity of disability support services offered at post-secondary institutions?
3. Does geographical region make an impact on the variety/quantity of disability support services offered at post-secondary institutions? See Figure 1 below.



*Figure 1. Regions of Postsecondary Institutions*

## **Statistical Analysis**

### **Preliminary Analyses**

Statistical Package for Social Sciences (SPSS) Version 20.0 was used to analyze the data. Measures of central tendency including means and standard deviations, as well as frequencies and percentages were calculated to describe the universities and colleges. Demographic information included university characteristics such as public versus private institution, two-year versus four-year institution, whether the school had a religious affiliation, number of DSS staff, number of students enrolled, number of students served by the DSS office, and number of students with ADHD served by the office. Relationships among the categorical demographic variables were examined using crosstabulations.

Finally, means and standard deviations were calculated to describe how often various mental health, social skills, academic, and daily living services are available to students with ADHD.

### **Primary Analyses**

A series of crosstabulations with chi square tests were used to assess the differences in disability services provided between public and private institutions. The individual mental health, social skills, academic services, and support services items were assessed in separate analyses. In addition, scaled scores were created for each type of service (i.e., overall score for academic services) and compared. The same procedure was used to examine differences between two-year and four-year institutions and

between geographic regions. In addition, a series of regressions predicting the availability of each of the four categories of services (mental health services, social skills services, academic services, and support services) from the university characteristics was conducted in SPSS.

## CHAPTER IV

### RESULTS

The results section begins with a description of the demographic characteristics of the sample as well as an examination of relationships among the primary demographic characteristics of interest (university type, length, size, and region). The primary analysis section follows the research questions in order. Frequencies and percentages, means and standard deviations, crosstabulations with chi-square, MANOVAs, as well as non-parametric statistics are used to address each research question individually. The chapter concludes with several predictive analyses, which predict each type of service available from the key demographic variables of interest.

#### **Descriptive and Preliminary Analyses**

##### **Sample Description**

Table 1 displays frequencies and percentages for the categorical demographic variables in this study. Results revealed that 315 schools (73.3%) were receiving federal funding, and only 17 schools (4.0%) were historically black colleges/universities (HBCU). Information on behalf of 88 schools (20.5% of the sample) for these two variables was not available. When asked about the number of student assistants at their schools, 126 DSS personnel (29.3%) expressed that their schools did not have any student assistants, and 146 (34.0%) indicated the presence of one to four student assistants at their schools. Only 66 schools (15.3%) had five or more student assistants.

Again, information on behalf of 92 schools (21.4% of the sample) for these two variables was not available.

When asked if the school at which they worked regularly coordinated with agencies or religious organizations on behalf of students with disabilities, 146 DSS personnel (34.0%) responded in the affirmative, and 187 (43.5%) gave a negative response. Additionally, 51 schools were receiving grants/community support, and 282 schools (65.6%) were not. Once again, information on behalf of 97 schools (22.6% of the sample) for these two variables was not available. Refer to Table 1.

Table 2 displays means and standard deviations for the following continuous demographic variables: population and number of students served by DSS. As shown in Table 2, number of enrollments at the college/universities in the sample ranged from 210 to 60,000 students, with a mean of 7,487.74 ( $SD = 888.62$ ), and the number of students served by DSS ranged from 2 to 4,000, with a mean of 277.83 ( $SD = 394.43$ ). Refer to Table 2.

### **Descriptive Statistics for Independent Variables**

Table 3 displays frequencies and percentages for the following categorical independent variables in the study: institution type, two-year or four-year, and region. Results revealed that the categorization of the responding institutions was as follows: 133 schools in the sample were private (30.9%), and 209 were public (48.6%). In regards to type of degrees awarded, 107 schools were two-year schools (24.9%), and 235 were four-year schools (54.7%). Moreover, 78 schools were located in the northeast region of the

United States (18.1%), 57 were in the west (13.3%), 87 were in the midwest (20.2%), and 120 were in the south (27.9%). For these three variables, 88 schools (20.5%) did not respond. Refer to Table 3.

Table 1

*Frequencies and Percentages for the Categorical Demographic Variables Federal Funding, HBCU, Number of Student Assistants, Religious Affiliation, Community Relationships, and Grants/Community Support*

	<i>n</i>	Percentage
Federal Funding		
No	27	6.3
Yes	315	73.3
Nonrespondents	88	20.5
HBCU		
No	325	75.6
Yes	17	4.0
Nonrespondents	88	20.5
Number of Student Assistants		
0	126	29.3
1–4	146	34.0
5 or More	66	15.3
Nonrespondents	92	21.4
Community Relationships		
No	187	43.5
Yes	146	34.0
Nonrespondents	97	22.6
Grants/Community Support		
No	282	65.6
Yes	51	11.9
Nonrespondents	97	22.6

Table 2

*Means and Standard Deviations for the Continuous Demographic Variables Population (Original and Log Transformed) and Number of Students Served by DSS (Original and Log Transformed)*

	<i>N</i>	<i>M</i>	<i>SD</i>	Min	Max
Population	327	7,487.74	8,888.62	210.00	60,000.00
Number of Students Served by DSS	331	277.83	394.43	2.00	4,000.00

Table 3

*Frequencies and Percentages for Institution Type, Institution Degrees, and Region*

	<i>n</i>	%
Institution Type		
Private	133	30.9
Public	209	48.6
Nonrespondents	88	20.5
Degrees Awarded		
2-Year	107	24.9
4-Year	235	54.7
Nonrespondents	88	20.5
Region		
Northeast	78	18.1
West	57	13.3
Midwest	87	20.2
South	120	27.9
Nonrespondents	88	20.5

## Relationships between Independent Variables

Table 4 displays a significant relationship between institution type and each of the following variables: institution degrees,  $\chi^2(1) = 85.32, p < .001$ , Cramer's  $V = .499$ ; and location of the institution by region,  $\chi^2(3) = 22.53, p < .001$ , Cramer's  $V = .257$ . A greater proportion of private schools were four-year institutions (97.7%) and were located in the northeast (33.8%) compared to public schools (50.2% and 15.8% respectively).

Table 4

*Frequencies and Percentages for Institution Degrees and Region by Institution Type*

	Institution Type				$\chi^2$	$p$
	Private		Public			
	$n$	%	$n$	%		
Degrees Awarded					85.32	<.001
2-Year	3	2.3	104	49.8		
4-Year	130	97.7	105	50.2		
Region					22.53	<.001
Northeast	45	33.8	33	15.8		
West	20	15.0	37	17.7		
Midwest	38	28.6	49	23.4		
South	30	22.6	90	43.1		

Table 5 displays a significant relationship between institution degrees and each of the following variables: institution type,  $\chi^2(1) = 85.32, p < .001$ , Cramer's  $V = .499$ ; and region,  $\chi^2(3) = 10.79, p = .013$ , Cramer's  $V = .178$ . A greater proportion of four-year institutions were private (55.3%) and were located in the northeast (27.2%) compared to two-year institutions (2.8% and 13.1% respectively). Refer to Table 5.



Table 6 displays a significant relationship between region and each of the following variables: institution type,  $\chi^2(3) = 22.53, p < .001$ , Cramer's  $V = .257$ ; and institution degrees,  $\chi^2(3) = 10.79, p = .013$ , Cramer's  $V = .178$ . A greater proportion of schools in the northeast were private (57.7%) and were four-year schools (82.1%) compared to schools in the west (35.1% and 57.9%), Midwest (43.7% and 70.1%), and south (25.0% and 64.2%). Refer to Table 6.

Table 5

*Frequencies and Percentages for Institution Type and Region by Institution Degrees*

	Institution Degrees				$\chi^2$	$p$
	2 Year		4 Year			
	$n$	%	$n$	%		
Institution Type					85.32	<.001
Private	3	2.8	130	55.3		
Public	104	97.2	105	44.7		
Region					10.79	.013
Northeast	14	13.1	64	27.2		
West	24	22.4	33	14.0		
Midwest	26	24.3	61	26.0		
South	43	40.2	77	32.8		

### **Relationships between Independent Variables and Demographics**

Table 7 displays the bivariate relationships between the demographic variable number of student assistants and each of the following independent variables: institution type, type of degrees awarded, and region. Results revealed that number of student assistants was only significantly related to institution degrees,  $\chi^2(2) = 10.65, p = .005$ ,

Cramer's  $V = .177$ . A greater proportion of schools with five or more student assistants were four-year institutions (80.3%) compared to schools with one to four student assistants (71.9%) or schools with no student assistants (58.7%).

Table 8 displays means and standard deviations for the population and number of students served by DSS for the two categories of the independent variable institution type. This table also displays the result of a MANOVA test to determine whether differences among the groups were significant. Results from the MANOVA revealed a significant multivariate effect,  $F(2, 324) = 67.759, p < .001, \eta^2 = .295$ . On average, public schools had significantly greater enrolled student populations ( $M = 10,752.90, SD = 11906.32$ ) and were serving more students ( $M = 367.95, SD = 466.22$ ) than were private schools ( $M = 3,084.65, SD = 3,454.38; M = 138.51, SD = 169.60$ ). Refer to Table 8.

Table 9 displays means and standard deviations for the number of students served by DSS for the two categories of the independent variable institution degrees. This table also displays the result of a MANOVA test to determine whether differences among the groups were significant. Results from the MANOVA revealed a significant multivariate effect,  $F(2, 324) = 8.940, p < .001, \eta^2 = .052$ . On average, two-year schools had significantly greater enrolled student populations ( $M = 10,282.47, SD = 13604.08$ ) and were serving more students ( $M = 379.94, SD = 557.73$ ) than were four-year schools ( $M = 6,590.30, SD = 8029.72; M = 231.71, SD = 282.00$ ). Refer to Table 9.

Table 6

*Frequencies and Percentages for Institution Type and Institution Degrees by Region*

	Region								$\chi^2$	$p$
	Northeast		West		Midwest		South			
	$n$	%	$n$	%	$n$	%	$n$	%		
Institution Type									22.53	<.001
Private	45	57.7	20	35.1	38	43.7	30	25.0		
Public	33	42.3	37	64.9	49	56.3	90	75.0		
Institution Degrees									10.79	.013
2 Year	14	17.9	24	42.1	26	29.9	43	35.8		
4 Year	64	82.1	33	57.9	61	70.1	77	64.2		

Table 7

*Frequencies and Percentages for Institution Type, Institution Degrees, and Region by Number of Student Assistants*

	Number of Student Assistants						$\chi^2$	$p$
	0		1–4		5 or More			
	$n$	%	$n$	%	$n$	%		
Institution Type							1.90	.387
Private	54	42.9	54	37.0	22	33.3		
Public	72	57.1	92	63.0	44	66.7		
Institution Degrees							10.65	.005
2 Year	52	41.3	41	28.1	13	19.7		
4 Year	74	58.7	105	71.9	53	80.3		
Region							9.47	.149
Northeast	33	26.2	30	20.5	13	19.7		
West	15	11.9	24	16.4	18	27.3		
Midwest	36	28.6	35	24.0	16	24.2		
South	42	33.3	57	39.0	19	28.8		

Table 8

*Means and Standard Deviations for Population and Number of Students Served by DSS by Institution Type*

	<i>n</i>	<i>M</i>	<i>SD</i>
Population			
Private	129	3,084.65	3,454.38
Public	200	10,752.90	11,906.32
Number of Students Served by DSS			
Private	130	138.51	169.60
Public	201	367.95	466.22

*Note.* Multivariate effect:  $F(2, 324) = 67.759, p < .001, \eta^2 = .295$ .

Table 9

*Means and Standard Deviations for Population and Number of Students Served by DSS by Institution Degrees*

	<i>n</i>	<i>M</i>	<i>SD</i>
Population			
2 Year	103	10,282.47	13,604.08
4 Year	226	6,590.30	8,029.72
Number of Students Served by DSS			
2 Year	103	379.94	557.73
4 Year	228	231.71	282.00

*Note.* Multivariate effect:  $F(2, 324) = 8.940, p < .001, \eta^2 = .052$ .

### **Descriptive Statistics for Dependent Variables**

Table 10 displays frequencies and percentages for the categorical dependent variables mental health services and social skills services. Results revealed that out of the 430 DSS personnel in this study, 105 indicated that no mental health services were provided at their schools (24.4%), 61 indicated that some mental health services were available (14.2%), and 229 indicated that all mental health services to help manage conditions such as, depression, stress, and loneliness were available at their schools (53.3%). Social skills services provide students with disabilities the skills to navigate various social situations. The DSS personnel were able to select services from a provided list in the survey, such as social skills groups, individual social skills counseling, peer mentorship, or social skills practice across multiple real-life settings. As for social skills services, 154 personnel indicated that no social skills services were available at their schools (35.8%), 96 indicated that only one social service was available (22.3%), and 134 indicated that more than one social service was available at their schools (31.2%). The information on behalf of 35 schools for mental health services and 46 schools for social skills services (8.1% and 10.7%) was not provided for the two variables respectively. Refer to Table 10.

Table 11 displays means and standard deviations for the two continuous dependent variables support services and academic services. Support services are those services that support students with disabilities in the area of activities of daily living. DSS personnel were provided a list of support services from which they could select the

services they offered that included, but were not limited to organization, time management, study skills training, navigating campus to help find classes, and problem solving. Academic services help students with disabilities to be more successful in the classroom with supports that the DSS personnel were to able select such as the following – preferential seating, note taker, copies of instructor’s notes, extra time on tests, taped lectures, or taking tests at the testing center. Results revealed that school scores for support services ranged from 10 to 50 with a mean of 30.39 ( $SD = 6.69$ ), and scores for academic services ranged from 24 to 72 with a mean of 47.10 ( $SD = 9.10$ ). Refer to Table 11.

### **Relationships between Dependent Variables**

Table 12 displays a significant relationship between the two categorical dependent variables mental health services and social skills services,  $\chi^2(4) = 45.56, p < .001$ , Cramer’s  $V = .244$ . A greater proportion of schools providing more than one social skills services were also providing all management services (70.1%) compared to schools providing only one social skills services (61.5%) and schools providing no social skills services (44.2%). Refer to Table 12.

Table 10

*Frequencies and Percentages for Mental Health Services and Social Skills Services*

	<i>n</i>	%
Mental Health Services		
No Services Available	105	24.4
Some Services Available	61	14.2
All Services Available	229	53.3
Nonrespondents	35	8.1
Social Skills Services		
No Social Skills Services	154	35.8
One Social Skills Services	96	22.3
More Than One Social Skills Services	134	31.2
Nonrespondents	46	10.7

Table 11

*Means and Standard Deviations for Support Services and Academic Services*

	<i>N</i>	<i>M</i>	<i>SD</i>	Min	Max
Support Services	388	30.39	6.69	10	50
Academic Services	384	47.10	9.10	24	72

Table 12

*Frequencies and Percentages for Mental Health Services by Social Skills Services*

	Social Skills Services						$\chi^2$	<i>p</i>
	No Social Skills Services		One Social Skills Service		More Than One Social Skills Services			
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%		
Mental Health Services							45.56	<.001
No Services Available	69	44.8	20	20.8	14	10.4		
Some Management Services Available	17	11.0	17	17.7	26	19.4		
All Management Services Available	68	44.2	59	61.5	94	70.1		

Table 13 displays means and standard deviations for the dependent variables support services and academic services by the three categories of the other dependent variable mental health services. This table also displays the result of a MANOVA test to determine whether differences among the groups were significant. Results from the MANOVA revealed a significant multivariate effect,  $F(4, 760) = 6.101, p < .001, \eta^2 = .031$ . Results also revealed that mental health services had a significant bivariate relationship with support services,  $F(2, 381) = 12.164, p < .001, \eta^2 = .060$ ; however, mental health services did not have a significant relationship with academic services,  $F(2, 381) = 2.793, p = .062, \eta^2 = .014$ . On average, schools that provided all mental



health management services had higher support services scores ( $M = 31.53$ ,  $SD = 6.57$ ) than did schools that provided some mental health services ( $M = 30.73$ ,  $SD = 6.54$ ) and schools that provided no mental health services ( $M = 27.71$ ,  $SD = 6.40$ ).

Table 13

*Means and Standard Deviations for Support Services and Academic Services by Mental Health Services*

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Support Services				12.16	<.001
No Services Available	103	27.71	6.40		
Some Management Services Available	60	30.73	6.55		
All Management Services Available	221	31.53	6.57		
Academic Services				2.79	.062
No Services Available	103	45.30	8.56		
Some Management Services Available	60	47.52	9.32		
All Management Services Available	221	47.82	9.20		

*Note.* Multivariate effect:  $F(4, 760) = 6.101$ ,  $p < .001$ ,  $\eta^2 = .031$ .

Table 14 displays means and standard deviations for the dependent variables support services and academic services by the three categories of the other dependent variable social skills services. This table also displays the result of a MANOVA test to determine whether differences among the groups were significant. Results from the MANOVA revealed a significant multivariate effect,  $F(4, 760) = 14.367$ ,  $p < .001$ ,  $\eta^2 = .070$ . Results also revealed that social skills services had significant bivariate relationships with the following: support services,  $F(2, 381) = 26.364$ ,  $p < .001$ ,  $\eta^2 =$

.122; and academic services,  $F(2, 381) = 9.141, p < .001, \eta^2 = .046$ . On average, schools that provided more than one mental health management service had higher support services and academic services scores ( $M = 33.04, SD = 5.92$ ; and  $M = 49.73, SD = 8.88$ ) than did schools that provided only one social skills service ( $M = 30.97, SD = 6.23$ ;  $M = 46.06, SD = 8.64$ ) and schools that provided no social skills services ( $M = 27.69, SD = 6.66$ ;  $M = 45.45, SD = 9.10$ ).

Table 14

*Means and Standard Deviations for Support Services and Academic Services by Social Skills Services*

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Support Services				26.36	<.001
No Social Skills Services	154	27.69	6.66		
One Social Skills Service	96	30.97	6.23		
More Than One Social Skills Services	134	33.04	5.92		
Academic Services				9.14	<.001
No Social Skills Services	154	45.45	9.10		
One Social Skills Service	96	46.06	8.64		
More Than One Social Skills Services	134	49.73	8.88		

The Pearson's correlation coefficient between the two continuous dependent variables of support services and academic services, indicates a positive and moderate relationship between the two ( $r = .360$ ). This result suggests that schools that scored higher on support services also tended to score higher on academic services.

### **Relationship between Demographic Variables and Dependent Variables**

Table 15 displays means and standard deviations for the dependent variables support services and academic services by the three categories of the demographic

variable number of student assistants. This table also displays the result of a MANOVA test to determine whether differences among the groups were significant. Results from the MANOVA did not reveal a significant multivariate effect,  $F(4, 668) = 1.997, p = .093, \eta^2 = .012$ . However, results did reveal a significant bivariate relationship between number of student assistants and academic services,  $F(2, 335) = 4.010, p = .019, \eta^2 = .023$ . On average, schools with no student assistants had higher academic services scores ( $M = 48.73, SD = 9.16$ ) than did schools with one to four student assistants ( $M = 45.86, SD = 9.68$ ) and schools with five or more student assistants ( $M = 45.65, SD = 8.31$ ).

Table 15

*Means and Standard Deviations for Support Services and Academic Services by Number of Student Assistants*

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Support Services				.42	.657
0	126	30.64	7.79		
1–4	146	29.92	6.04		
5 or More	66	29.98	6.34		
Academic Services				4.01	.019
0	126	48.73	9.16		
1–4	146	45.86	9.68		
5 or More	66	45.65	8.31		

*Note.* Multivariate effect:  $F(4, 668) = 1.997, p = .093, \eta^2 = .012$ .

## Primary Analyses

### Research Question One

Table 16 displays the bivariate relationships between the dependent variable mental health services and institution type. The results revealed that the variety and quantity of mental health services offered was significantly impacted by institution type,  $\chi^2(2) =$

7.11,  $p = .029$ , Cramer's  $V = .144$ . Greater proportions of schools, which provide all mental health management services were public institutions (55.1 %) as compared to schools that provided some mental health management services (67.3 %) and school that provided no mental health management services (70.3 %). Refer to Table 16.

Table 17 displays the bivariate relationships between the dependent variable social skills services and institution type. Results revealed that the institution type did not significantly impact the variety and quantity of social skills services offered,  $\chi^2(2) = 4.21$ ,  $p = .122$ , Cramer's  $V = .111$ . Refer to Table 17.

Table 18 displays the result of a MANOVA test to determine whether differences between the two categories of the independent variable institution type were significant for the dependent variables support services and academic services. Results revealed that institution type had a significant bivariate relationship with support services,  $F(1, 340) = 8.351$ ,  $p = .004$ ,  $\eta^2 = .024$ . On average, private schools had higher support services scores ( $M = 31.59$ ,  $SD = 7.31$ ) than did public schools ( $M = 29.44$ ,  $SD = 6.30$ ). Additionally, results revealed that institution type had a significant bivariate relationship with academic services,  $F(1, 340) = .65$ ,  $p = .420$ ,  $\eta^2 = .002$ . On average, private schools had higher support services scores ( $M = 47.46$ ,  $SD = 9.62$ ) than did public schools ( $M = 46.63$ ,  $SD = 9.08$ ). Refer to Table 18.

## **Research Question Two**

Table 16 displays the bivariate relationships between the dependent variable mental health services and the independent variables institution degree. Results revealed

that the variety and quantity of mental health services was significantly related to institution degrees,  $\chi^2(2) = 38.70, p < .001$ , Cramer's  $V = .336$ . Greater proportions of schools that provided all mental health management services were four-year institutions (81.6%). Refer to Table 16.

Table 16

*Frequencies and Percentages for Institution Type, Institution Degrees, and Region by Mental Health Services*

	Mental Health Services						$\chi^2$	$p$
	No		Some		All			
	Services		Management		Management			
	Available		Services		Services			
	$n$	%	$n$	%	$n$	%		
Institution Type							7.11	.029
Private	27	29.7	18	32.7	88	44.9		
Public	64	70.3	37	67.3	108	55.1		
Institution Degrees							38.70	<.001
2 Year	49	53.8	22	40.0	36	18.4		
4 Year	42	46.2	33	60.0	160	81.6		
Region							6.05	.418
Northeast	16	17.6	16	29.1	46	23.5		
West	17	18.7	4	7.3	36	18.4		
Midwest	25	27.5	15	27.3	47	24.0		
South	33	36.3	20	36.4	67	34.2		

Percentages for Institution Type, Institution Degrees, and Region by Social Skills Services

		Social Skills Services					
		No Social Skills Services		One Social Skills Service		More Than One Social Skills Service	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
s		51	35.7	29	34.1	53	46.5
		92	64.3	56	65.9	61	53.5
68		58	40.6	21	24.7	28	24.6
		85	59.4	64	75.3	86	75.4
		30	21.0	26	30.6	22	19.3
		28	19.6	9	10.6	20	17.5
		46	32.2	17	20.0	24	21.1
		39	27.3	33	38.8	48	42.1
						$\chi^2$	<i>p</i>
						9.83	.007
						14.57	.024

Table 18

*Means and Standard Deviations for Support Services and Academic Services by Institution Type*

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Support Services				8.35	.004
Private	133	31.59	7.31		
Public	209	29.44	6.30		
Academic Services				.65	.420
Private	133	47.46	9.62		
Public	209	46.63	9.08		

*Note.* Multivariate effect:  $F(2, 339) = 4.211, p < .016, \eta^2 = .024$ .

Table 19

*Means and Standard Deviations for Support Services and Academic Services by Institution Degrees*

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Support Services				1.18	.279
2-Year	107	29.68	5.90		
4-Year	235	30.54	7.14		
Academic Services				3.99	.047
2-Year	107	48.43	8.97		
4-Year	235	46.28	9.37		

*Note.* Multivariate effect:  $F(2, 339) = 4.031, p < .019, \eta^2 = .023$ .

Table 17 displays the bivariate relationships between the dependent variable social skills services and the independent variable institution degrees. Results revealed that the variety and quantity of social skills services offered by a postsecondary institution was significantly related to whether the institution was a four-year or two-year institution: institution degrees,  $\chi^2(2) = 9.83, p = .007$ , Cramer's  $V = .170$ . Smaller

proportions of schools that did not provide any social skills services were four-year institutions (59.4%). Refer to Table 17.

Table 19 displays means and standard deviations for the dependent variables support services and academic services by the two categories of the independent variable institution degrees. Results from the MANOVA revealed a significant multivariate effect that on average, two-year schools had higher academic services scores ( $M = 48.43$ ,  $SD = 8.97$ ) than did four-year universities/colleges ( $M = 46.28$ ,  $SD = 9.37$ ). Refer to Table 19.

### **Research Question Three**

Table 16 displays the bivariate relationships between the dependent variable mental health services and region. Results revealed that the geographic region of the postsecondary institution did not significantly impact the variety and quantity of mental health services offered. Refer to Table 16.

Table 17 displays the bivariate relationships between the dependent variable social skills services and the independent variable region. Results revealed that social skills services was significantly related to the geographic region of the school,  $\chi^2(6) = 14.57$ ,  $p = .024$ , Cramer's  $V = .146$ . Smaller proportions of schools that did not provide any social skills services were located in the south (27.3%) compared to one-third of the schools that provided only one social skills service (38.8%) and those schools that provided more than one social skills service (42.1%). Refer to Table 17.



## Predictive Analysis

As shown in Table 20 ordinal regressions were conducted to predict mental health services from the following variables: institution type, institution degrees, region, religious affiliation, and community relationships. The overall model was statistically significant,  $\chi^2(7) = 43.44, p < .001$ , with a Nagelkerke's pseudo  $R^2$  of .143, which suggests an acceptable model. However, the only significant predictor in the model was institution degrees ( $B = -1.59, p < .001$ ), implying that two-year institutions provided fewer mental health management services than did four-year institutions. The remaining predictors were not significant, *ns*.

Table 20

*Summary of Ordinal Regression Predicting Mental Health Services From Institution Type, Institution Degrees, and Region and From the Covariates Religious Affiliation and Community Relationships*

					95% CI	
	<i>B</i>	<i>SE</i>	<i>Wald</i>	<i>p</i>	<i>LL</i>	<i>UL</i>
Threshold						
No Mental Health Services Available	-1.299	.45	8.21	.004	-2.19	-.41
Some Management Services Available	-.480	.45	1.15	.283	-1.36	.40
Location						
Institution Type (Private)	.368	.38	.93	.335	-.38	1.12
Institution Type (Public)	—	—	—	—	—	—
Institution Degrees (2 Year)	-1.589	.29	30.32	<.001	-2.16	-1.02
Institution Degrees (4 Year)	—	—	—	—	—	—
Region (Northeast)	-.154	.32	.23	.633	-.79	.48
Region (West)	.196	.34	.34	.562	-.47	.86
Region (Midwest)	-.122	.29	.18	.673	-.69	.45
Region (South)	—	—	—	—	—	—
No Religious Affiliation	.546	.39	1.99	.158	-.21	1.30

(Continued)

Religious Affiliation	–	–	–	–	–	–
No Community Relationships	-.297	.24	1.49	.223	-.78	.18
Community Relationships	–	–	–	–	–	–

*Note.* Model Summary:  $\chi^2(7) = 43.440, p < .001$ , Nagelkerke  $R^2 = .143$ .

A summary for the ordinal regression model as seen in Table 21 displays the predicting social skills services from the following variables: institution type, institution degrees, region, and community relationships. Significant predictors in this model included the following: institution degrees ( $B = -.822, p = .002$ ), implying that two-year institutions provided fewer social skills services than did four-year institutions; northeast region ( $B = -.596, p = .039$ ) and Midwest region ( $B = -.803, p = .003$ ), implying that schools in the northeast and Midwest provided fewer social skills services than did schools in the south; and community relationships ( $B = -.494, p = .028$ ), implying that schools that did not regularly coordinate with agencies or religious organizations on behalf of students with disabilities provided fewer social skills services than did schools that did coordinate with agencies or religious organizations. This model was statistically significant,  $\chi^2(6) = 24.83, p < .001, R^2 = .081$ . Refer to Table 21.

A summary for the multiple regression model predicting support services from the following variables: institution type, institution degrees, region, number of student assistants, religious affiliation, community relationships, grants/community support are displayed in Table 22. The predictors were entered in three successive blocks. In the first block, only independent variables relating to the research hypotheses were included

as predictors; this block resulted in a model that was not statistically significant,  $F(5, 317) = 2.151, p = .059, R^2 = .033$ . Grants/Community support was added in the second block to create a significant model,  $F(6, 316) = 2.492, p = .023$ . However, the second block was still only capable of explaining 4.5% of the total variance in the response variable. Institution type ( $Beta = -.164, p = .014$ ) and grants/community support ( $Beta = .115, p = .044$ ) were significant predictors in this model, implying that public institutions provided fewer support services but that receiving grant/community support resulted in more support services. However, it should be noted that due to the low  $R^2$  for this model, the results bear minimal predictive power. Other potential covariates were added in the third block, causing an insignificant gain in predictive power ( $R^2 = .054, p = .828$ ). Block 3 was not statistically significant,  $F(12, 310) = 1.470, p = .134$ . Refer to Table 22.

Table 23 displays a summary for the multiple regression model predicting academic services from the following variables: institution type, institution degrees, region, number of student assistants, religious affiliation, community relationships, grants/community support, population, and number of students served by DSS. The predictors were entered in three successive blocks. In the first block, only independent variables relating to the research hypotheses were included as predictors; this block resulted in a model that was not statistically significant,  $F(5, 317) = 1.667, p = .142, R^2 = .026$ . Population and number of students served by DSS were added in the second block to create a significant model,  $F(7, 315) = 3.162, p = .003$ . Nevertheless, the second block was still only capable of explaining 6.6% of the total variance in the response

variable. Institution degrees ( $Beta = -.128, p = .050$ ) was the only significant predictor in this model, implying that four-year institutions with larger numbers of enrolled students tended to score lower on academic services. It should be noted that due to the low  $R^2$  for this model, the results bear minimal predictive power. Other potential covariates were added in the third block, causing an insignificant gain in predictive power ( $R^2 = .077, p = .601$ ). Block 3 was statistically significant,  $F(12, 310) = 2.141, p = .014$ . Refer to Table 23.

Table 21

*Summary of Ordinal Regression Predicting Social Skills Services From Institution Type, Institution Degrees, and Region and From the Covariate Community Relationships*

					95% CI	
	<i>B</i>	<i>SE</i>	<i>Wald</i>	<i>p</i>	<i>LL</i>	<i>UL</i>
Threshold						
No Social Skills Services	-1.167	.27	19.25	<.001	-1.69	-.65
One Social Skills Service	-.075	.26	.08	.772	-.58	.43
Location						
Institution Type (Private)	.306	.25	1.47	.226	-.19	.80
Institution Type (Public)	—	—	—	—	—	—
Institution Degrees (2 Year)	-.822	.27	9.29	.002	-1.35	-.29
Institution Degrees (4 Year)	—	—	—	—	—	—
Region (Northeast)	-.596	.29	4.24	.039	-1.16	-.03
Region (West)	-.395	.31	1.62	.203	-1.00	.21
Region (Midwest)	-.803	.27	8.56	.003	-1.34	-.27
Region (South)	—	—	—	—	—	—
No Community Relationships	-.494	.23	4.82	.028	-.94	-.05
Community Relationships	—	—	—	—	—	—

*Note.* Model Summary:  $\chi^2(6) = 24.828, p < .001$ , Nagelkerke  $R^2 = .081$ .

Table 22

*Summary of Multiple Linear Regression Predicting Support Services From Institution Type, Institution Degrees, and Region and From the Covariates Number of Student Assistants, Religious Affiliation, Community Relationships, Grants/Community Support, Log Population, and Log Number of Students Served by DSS*

	<i>B</i>	<i>SE</i>	<i>Beta</i>	<i>t</i>	<i>p</i>
Block 1					
Institution Type	-2.044	.93	-.147	2.209	.028
Institution Degrees	-.656	.96	-.045	.686	.493
Region (Northeast)	1.749	1.06	.106	1.655	.099
Region (West)	-.054	1.12	-.003	.048	.962
Region (Midwest)	.527	.98	.034	.537	.592
Block 2					
Institution Type	-2.288	.93	-.164	2.464	.014
Institution Degrees	-.395	.96	-.027	.411	.681
Region (Northeast)	1.611	1.05	.098	1.529	.127
Region (West)	-.074	1.11	-.004	.066	.947
Region (Midwest)	.375	.98	.024	.383	.702
Grants/Community Support	2.179	1.08	.115	2.022	.044
Block 3					
Institution Type	-2.386	1.36	-.171	1.752	.081
Institution Degrees	-.085	1.02	-.006	.083	.934
Region (Northeast)	1.342	1.13	.082	1.184	.237
Region (West)	-.265	1.15	-.015	.230	.818
Region (Midwest)	.283	1.00	.018	.284	.777
Grants/Community Support	1.982	1.11	.105	1.785	.075
Number of Student Assistants (1–4)	-.597	.90	-.044	.666	.506
Number of Student Assistants (5 or More)	-.238	.60	-.027	.397	.692
Religious Affiliation	.022	1.26	.001	.018	.986
Community Relationships	1.091	.82	.080	1.326	.186

*Note.* Model 1 Summary:  $F(5, 317) = 2.151, p = .059, R^2 = .033$ ; Model 2 Summary:  $F(6, 316) = 2.492, p = .023, R^2 = .045, F$  change  $p = .044$ ; Model 3 Summary:  $F(12, 310) = 1.470, p = .134, R^2 = .054, F$  change  $p = .828$ .

Table 23

*Summary of Multiple Linear Regression Predicting Academic Services From Institution Type, Institution Degrees, and Region and From the Covariates Number of Student Assistants, Religious Affiliation, Community Relationships, Grants/Community Support, Log Population, and Log Number of Students Served by DSS*

	<i>B</i>	<i>SE</i>	<i>Beta</i>	<i>t</i>	<i>p</i>
Block 1					
Institution Type	-2.484	1.26	-.13	1.966	.050
Institution Degrees	-3.005	1.31	-.15	2.299	.022
Region (Northeast)	-.935	1.44	-.04	.648	.518
Region (West)	.447	1.53	.02	.293	.770
Region (Midwest)	1.048	1.34	.05	.781	.435
Block 2					
Institution Type	.132	1.44	.01	.092	.927
Institution Degrees	-2.549	1.29	-.13	1.971	.050
Region (Northeast)	-1.386	1.47	-.06	.941	.347
Region (West)	.746	1.53	.03	.489	.626
Region (Midwest)	1.215	1.32	.06	.918	.359
Block 3					
Institution Type	.367	1.83	.02	.200	.841
Institution Degrees	-1.935	1.37	-.10	1.414	.158
Region (Northeast)	-1.378	1.52	-.06	.904	.367
Region (West)	.763	1.55	.03	.493	.623
Region (Midwest)	1.076	1.34	.05	.804	.422
Number of Student Assistants (1–4)	-1.580	1.20	-.09	1.312	.190
Number of Student Assistants (5 or More)	-.456	.81	-.04	.567	.571
Religious Affiliation	.913	1.70	.04	.538	.591
Community Relationships	1.132	1.11	.06	1.022	.307
Grants/Community Support	1.108	1.49	.04	.742	.459

*Note.* Model 1 Summary:  $F(5, 317) = 1.667, p = .142, R^2 = .026$ ; Model 2 Summary:  $F(7, 315) = 3.162, p = .003, R^2 = .066, F$  change  $p = .001$ ; Model 3 Summary:  $F(12, 310) = 2.141, p = .014, R^2 = .077, F$  change  $p = .601$ .

## **Summary**

In conclusion, the demographic characteristics of the study are presented and are followed by an in-depth examination of the services offered to students with ADHD as detailed and examined by the key independent variables of interest; institution type, institution degree, and region. The chapter concludes with several regression analyses predicting availability of mental health, social skills, support, and academic services for students with ADHD from the key independent variables. Findings will be discussed in the next section.

## CHAPTER V

### DISCUSSION

The previous chapters reviewed the available literature on the transition to postsecondary institutions for students with Attention Deficit Hyperactivity Disorder (ADHD). Multiple research questions were examined for this study. Significant results were reported for several of the questions. For clarity, the final chapter of this study is divided into sections. The first section of this chapter restates the purpose of this study. Next, the study findings will be integrated with relevant literature including suggestions for future research. The third section reports implications of the findings relevant to the practice of school psychology. Lastly, the limitations of the current study will be discussed and conclusions will be made.

#### **Statement of Purpose**

Distinct policies, laws, and systems of governance define how students with disabilities are treated within secondary and postsecondary settings. A guarantee of a free and appropriate education is dictated under the IDEA for students in primary and secondary public schools (IDEA, 2004). Student's rights are protected under the governance of the ADA when they transition to postsecondary school (ADA, 1990). The disjointed governance systems can result in students not receiving needed services as these laws have different goals and provisions (Kirst & Venezia, 2007).

The dramatic increase in children diagnosed with ADHD created a new group of students now approaching the age of entry to postsecondary institutions (Pastor &



Reuben, 2008). Federal and state surveys determined that nearly eleven percent of all postsecondary students have disabilities, with approximately nineteen percent of that population being students with ADHD (United States Government Accountability Office, 2009). These students are accustomed to the accommodations provided to them under the IDEA within the secondary school setting. As these students transition into postsecondary institutions it is important that they be prepared for the types of accommodations that will be available. Disability support services are not standardized at the postsecondary level, which allows colleges and universities to utilize various approaches and accommodation to serve students with disabilities (United States Government Accountability Office, 2009).

A goal of this dissertation was to describe accommodations that are currently available to students with ADHD within the various types of postsecondary institutions. Specifically, what mental health, social, academic, activities of daily living, and general supports are available for students with ADHD? Students, parents, and professionals need to understand the current state of available accommodations to help students with ADHD transition more smoothly and effectively advocate for services.

	<b>Mental Health Services</b>	<b>Support Services</b>	<b>Academic services</b>	<b>Social Skills Services</b>
<b>Private</b>	✖	✖		
<b>Public</b>				
<b>2-year</b>			✖	
<b>4-year</b>	✖			✖
<b>Northeast</b>				
<b>South</b>				✖
<b>Midwest</b>				
<b>West</b>				

*Figure 2. Services Offered at Postsecondary Institutions*

### **Examination of Research Question One**

The first research question examined by this study was to explore whether the type of a postsecondary institution, public or private, had an impact on the type and quantity of services offered through the Disability Support Services (DSS) offices for individuals with ADHD. The responses provided by the survey participants indicated that private schools were more likely to provide a wider variety and quantity of mental health services. Professor Richard Bonnie of the University of Virginia's School of Law testified before the General Assembly's Joint Commission on Health Care (JCHC) regarding the student's ability to access mental health care and the manner in which colleges are responding to the mental health needs of its students. According to Bonnie, private institutions have more staff and are able to serve more students than 4-year public institutions (University of Virginia School of Law, 2010). To complement their mental health services approximately half of all private institutions have partnered with community outreach programs. Additionally, on average approximately fifty-six students per public school vs. six students per private school withdrew due to mental health related issues. Suicide completion rates among students are approximately one-third of all public institutions (University of Virginia School of Law, 2010).

Social skills services, however, were not mediated by whether the institution was a public or private school. A point to consider with social skills services is the size of the postsecondary institution. Public institutions have larger populations than private institutions, often with large lecture classes up to 200 students (Peterson, 2013). An

individual with ADHD that exhibits difficulty with social or interpersonal problems may perform poorly at a large public school. Investigation of public schools with small populations and lecture classes or private schools will be key for students with social skills deficits.

When averaging which institution type offered a wider variety and quantity of support services, private schools had higher scores than public schools. However, institution type did not reveal a significant relationship in the academic services offered through the DSS offices by public or private schools. When using institution type as a predictor of support services, this variable was a significant predictor implying that public institutions provided fewer support services. According to Annie Murphy Paul and Fareed Zakaria, the book “Paying for the Party: How College Maintains Inequality” notes that rising costs at public state universities in addition to reduced federal funding for postsecondary education has encouraged state colleges/universities to fall into a growing trend of increased admissions of rich out-of-state students who are able to afford the increased tuition (2013). The growing disparity of funds contributed to athletic programs over academic programs is apparent in the less than stellar academic offerings (Paul, 2013). The typical low-income student with disabilities will more than likely not be able to attend a 4-year public university, if the present state of admission practices continue.

These responses provided by DSS personnel indicate that for individual with ADHD that may have a greater need for mental health and support services, private

institutions would be a better fit. For individuals with ADHD that prioritize social skills and/or academic services the institution type may not be as critical of a deciding factor. See Figure 2.

### **Examination of Research Question Two**

The second research question examined by this study was to explore whether the degree of a postsecondary institution, two-year or four-year, had an impact on the type and quantity of services offered through the DSS offices for individuals with ADHD. Postsecondary institutions that offered four-year degrees provided a higher proportion of all mental health management services as compared to other schools. Additional support of this data was achieved through the ordinal regression of DSS personnel responses, which implied two-year institutions provided fewer mental health management services than four-year institutions.

When considering social skills services, four-year institutions provided more social skills services than 2-year institutions. The majority of 2-year institutions provide more than one social skills service to students requiring assistance in this area. Additionally, when averaging the responses of DSS personnel from 2- and 4 -year schools, two-year schools had higher academic services scores than did four-year universities/colleges. This information is compelling as it relates to a 2008 National Postsecondary Student Aid Study (NPSAS), which indicated students with disabilities attended 2-year schools at a higher rate than 4-year schools (2009). The study revealed 2-year schools have higher rates of accessibility to supports services, and provide more

specialized services for students with disabilities in addition to smaller classes and more personal attention from faculty (NPSAS, 2009). Institution degrees and population were significant predictors in the regression model with the implication that four-year institutions with larger numbers of enrolled students tended to score lower on academic services.

Due to higher rates of poor academic performance among students with ADHD, academic services will be especially important for these individuals (Loe & Feldman, 2007). Prioritization of academic services indicates that attending a two-year school would be more beneficial for a student with ADHD. The student's transition plan should direct them toward a two-year institution upon graduation from a secondary school. The student may opt to continue on to a four-year institution with a small population of students upon completion of their two-year degree. Ewell and Wellman (2007), suggest that transition supports for students transferring from 2-year to 4-year schools should be more seamless to ensure continued academic progress. Success at a four-year institution at this juncture may be higher because the student has had a greater variety and quantity of academic support at the two-year postsecondary level in addition to the smaller enrollment numbers at the four-year institution may indicate the possibility of more academic supports. See Figure 2.

### **Examination of Research Question Three**

The third research question examined by this study was to explore whether the geographic region of a postsecondary institution, South, West, Midwest, or Northeast,

had an impact on the type and quantity of services offered through the DSS offices for individuals with ADHD. The Midwest and Northeast regions were the only regions that had any significant effect on the model. The implication of the significance is that the northeast region and Midwest region, provide fewer social skills services than schools in the south.

Adapting to college social life will be difficult for individuals with ADHD due to reduced ability to inhibit behaviors (Barkley, 1997). Regulation of emotions and behavior in and out of the classroom will be a challenge (Hoza, 2007; Barkley, 1997). The provision of social skills services is key for these students with ADHD as the ability to regulate behavior stem from not understanding the application socially of acceptable behaviors in diverse situations (Barkley, 1997). For these students, the implication is that schools located in the South may provide the tools needed to be socially successful at a postsecondary institution. See Figure 2.

### **Implications for School Psychologists**

As the population of students with disabilities continues to grow and matriculate to higher education, the need for support of transition from secondary to postsecondary institutions will increase. There is a wide range of disabilities affecting students in postsecondary schools and while there may be overlaps in symptomology among the disabilities, there still exists a great need for varied options in disability support services. Because the accommodations provided to students with disabilities at the secondary level change at the postsecondary level and confusion often exists regarding what

constitutes a reasonable accommodation, school psychologists will need to become more familiar with and possess the ability to clearly explain the roles, responsibilities, and rights of the student, parent, and school at the postsecondary level.

Unfortunately, because there is no standardization of services or process to obtain accommodations at the postsecondary level school psychologist may be forced to determine a standard of best practices for transition by creating and sustaining an open dialogue with postsecondary DSS offices. Having an open dialogue will help to ensure that all students with disabilities are provided the proper guidance during their transition, have the appropriate documentation required by DSS offices, and understand what accommodations are reasonable and most beneficial to promote the academic success of the student.

Critical factors of student success at the postsecondary level are non-academic skills attained at the secondary level (Ewell & Wellman, 2007). Effective skills such as self-determination and self-advocacy which are essential for students to self-disclose their disability, request needed services, and implementation through initiating contact with university professors is key for success not only at the postsecondary level, but also in life (Getzel & Thoma, 2008; Gil, 2007; President's Commission on Excellence in Special Education, 2002; Skinner, 2004). Wagner, Newman, Cameto, Garza & Levine (2005) determined that only a little over one-third of students with disabilities enrolled in postsecondary education settings identify themselves as disabled to their schools, which indicates a large number of students with disabilities that are not receiving needed

accommodations, in addition to risking their academic success. It will be pertinent for school psychologists to understand the importance of these skills to include the acquisition of said skills as part of the student's transition plan.

### **Limitations**

As with most research, there are limitations for this study. Given that this is an exploratory study, the researcher attempted to evaluate some of the main characteristics such as institution type (public/private), institution length (two-year/four-year) and geographic region. It is acknowledged that other factors could influence the presence or absence of services for students with ADHD. Future researchers may wish to evaluate more characteristics of the institutions to determine if this may be an influence on the availability of services.

The sample size of this study was sufficient to conduct all of the analyses presented in this dissertation. One of the goals of this research is to provide useful tools to assist individuals with ADHD and parents in the selection of postsecondary institutions to meet required needs. Additional disability support services participants from various states would have made it possible for an analysis to be conducted for each state. Future researchers should amass more samples from states to create this tool.

The potential confounding of postsecondary institution characteristics presented a limitation to this study. For example, all private institutions are 4-year schools. Additionally the majority of private postsecondary institutions are located in the Northeast geographic region of the United States.



The survey being exploratory in nature prevented the use of other historical measures with predetermined validity and reliability. This may have increased possible error in responses due to uncertainty in the labeling of disability types, university characteristics, and documentation labels. Similarly, while many terms and concepts were defined, respondents who were less familiar with the research literature may have misunderstood aspects of high school service delivery and assessment documents.

A concluding limitation to this study is the characteristics of students who transition to four-year institutions. Four-year institutions have incoming students transitioning from both secondary institutions and two-year postsecondary institutions. Four-year institutions provide educational instruction that is more advanced and requires additional abilities to meet the increased academic demands of these programs. The comparability between the two groups may be limited by the student characteristics.

### **Recommendations for Future Research**

More research needs to be done in the area of transitions to postsecondary institutions for students with ADHD. Several areas of opportunity were outlined within the examination of research questions. This section specifically addresses future areas of research to address professionals working in secondary settings, for parents, and for students with ADHD.

It would be beneficial for longitudinal research to be conducted with individual students with ADHD throughout their transition process from secondary to postsecondary institutions. This type of research would better target the strengths and

weaknesses of the process. It would give researchers the information to better understand the specific needs of the individuals, and to highlight interventions that facilitate a successful transition.

Research needs to be conducted to examine the cultural aspects of postsecondary institutions. It would be useful to understand if there is a difference in the type and variety of services offered by postsecondary institutions with a student population that is predominantly African-American and/or Hispanic. Additionally, it would be useful to understand what services are found to be most beneficial by this population of students with ADHD.

As technology continues to advance our daily lives, strides are being made in the area of education as well. The trend of distance and online education is becoming more popular increasing the access of education for students with disabilities. More and more postsecondary institutions are offering the ability to fully obtain an undergraduate, as well as, some graduate degrees online. It would be useful to understand what accommodations might be provided and implemented to students with disabilities, specifically students with ADHD, and the academic effectiveness of this mode of education and delivery of support services.

More research is needed to ascertain the effectiveness of postsecondary interventions and supports. The graduation rates of individuals attending postsecondary institutions with and without ADHD should be compared. Additionally, graduation rates of individuals with ADHD should be compared according to the amount of supports on

each campus, and other institution factors to determine what factors may have the greatest impact on student success. Other outcome measures such as retention, grade point average, employment after college, and stability in employment after college could also be considered.

### **Conclusion**

The findings from this dissertation provide multiple areas of practical application for school psychology. There seems to be an area of opportunity for school psychologists to reach out to postsecondary DSS professionals and advocate for students with ADHD. If school psychologists better understand the services provided by postsecondary institutions, then this will help them provide better transition services to ensure that students select the postsecondary institution that offers the greatest variety and quantity of accommodations that will aid the success of their academic endeavors. Additionally, increased understanding by school psychologists of the services offered by two-year and four-year institutions will also aid them in guiding students with ADHD to the best postsecondary environment that will the best fit for their academic needs.

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## APPENDIX A

Survey of Disability Support Services Personnel Regarding Transition and Support  
Services for Postsecondary Students.

Survey of Disability Support Services Personnel regarding Transition and  
Support Services for Postsecondary Students.

Note: Submission of your completed questionnaire constitutes your informed consent to act as a participant in this research.

Thank you for agreeing to participate in this survey. The questions below have to do with your experiences as a professional working with Disability Support at a postsecondary institution.

Please answer all of the questions included in this survey. Participation in this survey is voluntary and you may withdraw at any time. The survey was created to be as efficient as possible and it can be completed in 30 minutes or less by most individuals. You can stop at the end of a page, save your answers, and return to the survey later if you wish to.

This survey is posted on Psychdata.com, which uses SSL encryption methods to minimize the risk of loss of confidentiality. However, there is a potential risk of loss of confidentiality in all email, downloading, and internet transactions. You will have the option of sharing the name of your postsecondary institution. The name of the institution will be used to collect additional demographic data by looking at the university's website. It will not be reported in the results.

Autism and Asperger's disorders are frequently thought of as occurring on a spectrum from mild to severe. For the purposes of this survey, both disorders will be referred to as Autism Spectrum Disorder (ASD). Unless it is otherwise stated, all of the questions are

directly related to the services available for students with Autism Spectrum Disorder at your postsecondary institution.

If you have any questions before or after you complete the survey, please contact Kathy DeOrnellas, Ph.D. at [info@beyondtransitions.com](mailto:info@beyondtransitions.com)

**Selected items used in this study:**

1. 1) Students enrolled in special education during their K-12 years have access to special education services such as accommodations and learning supports. When students with the following disabilities transition to postsecondary institutions, how prepared are they to succeed academically in college? [1-5 Likert Scale with: 1 = Not at all prepared, 2, 3=Somewhat prepared, 4, 5=Very prepared]
  - a. Autism Spectrum Disorder
  - b. ADHD (Attention-Deficit/Hyperactivity Disorder)
  - c. Learning Disabilities
  - d. Traumatic Brain Injury
2. Students enrolled in special education during their K-12 years have access to special education services such as accommodations and learning supports. When students with the following disabilities transition to postsecondary institutions, how prepared are they to succeed with the social/independent living aspects of college? [1-5 Likert Scale with: 1 = Not at all prepared, 2, 3=Somewhat prepared, 4, 5=Very prepared]

- a. Autism Spectrum Disorders
  - b. ADHD
  - c. Learning Disabilities
  - d. Traumatic Brain Injuries
3. Do students with disabilities have a contact person on campus during breaks (ex. winter break, spring break, summer) to ensure continuity of services?
- a. Yes
  - b. No
4. Please endorse any of the following health care services that are coordinated for students by your office: (Check all that apply)
- a. General healthcare/wellness
  - b. Dentistry
  - c. Occupational therapy
  - d. Physical therapy
  - e. Speech therapy
  - f. None
  - g. Other (please specify)
5. Where do students access counseling services provided by your postsecondary institution? (check all that apply)
- a. Disability Support Services Office
  - b. Counseling Center

- c. Other (please specify)
6. What mental health services are available to students with disabilities?
- a. Managing anxiety
  - b. Managing depression
  - c. Managing stress
  - d. Managing loneliness
  - e. Psychological education
  - f. None
  - g. Other (please specify)
7. The following is a list of support services that various universities offer to support students with disabilities regarding activities of daily living. Please rate how often your institution helps students with these activities. ? [1-5 Likert Scale with: 1=Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Almost Always]
- a. Understanding university rules and procedures
  - b. Problem solving
  - c. Organization
  - d. Time management
  - e. Study skills training
  - f. Self-advocacy training
  - g. Managing medication

- h. Navigating campus (help finding all classes)
  - i. Accessing transportation
  - j. Maintaining personal hygiene
  - k. Dressing appropriately
  - l. Setting alarm clocks
  - m. Handling fire drills
  - n. Help managing personal budget
  - o. Additional help with specific class/faculty selection
  - p. Eating in a cafeteria
  - q. Shopping
8. What social skills services are available to students with disabilities? (check all that apply)
- a. Social skills groups
  - b. Individual social skills counseling
  - c. Life skills coaching
  - d. Job Coaching
  - e. Peer Mentorship
  - f. Social skills practice across multiple real-life settings
  - g. None
  - h. Other (please specify)
9. Are the following academic supports available to students with disabilities?



[1-5 Likert Scale with: 1=Never/Not Offered, 2=Rarely, 3=Sometimes, 4=Often, 5=Almost Always]

- a. Smaller class size
  - b. Preferential seating
  - c. Note taker
  - d. Copies of instructor's notes
  - e. Taped lectures
  - f. Testing center
  - g. Extra time on tests
  - h. Permission to avoid group projects
  - i. Permission to avoid presentations
  - j. Permission to avoid public speaking
  - k. Oral rather than written exams
  - l. Flexible due dates
  - m. Permission to attend other sections of the same class
  - n. Tutoring
  - o. Class substitution (taking an extra class to avoid a class like speech)
  - p. Class exemption (a specific class like speech)
10. Describe the culture of your university as it pertains to accessing disability services. [Free response]
11. How many staff are in your Disability Support Services office? [enter # of

people]

- a. Full-time (40+ hours):
  - b. Part-time (under 40 hours):
  - c. Student Assistants
12. Is your school a public or private institution?
- a. Public
  - b. Private
13. Does your institution receive any federal funding?
- a. Yes
  - b. No
14. Is your school a 4-year or 2-year institution?
- a. 4-year
  - b. 2-year
15. Is your school a religiously-affiliated institution?
- a. Yes
  - b. No
16. In what state is your institution located?
17. What is the total population of your postsecondary institution? (enter #)
18. How many students are served by your Disability Support Services department?
19. Are there community agencies or religious organizations you regularly

coordinate with on behalf of students with disabilities?

a. Yes

b. No

20. Does your department receive any specific grants or community support outside university funding?

a. Yes

b. No