Comorbid Implications: How Does ADD/ADHD Affect College Students Vocationally and Educationally?

by

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ABSTRACT

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Abstract

The prevalence of Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder in college students and how it affects them vocationally and educationally was investigated. The research also explored underlying symptoms of comorbid or other related disorders that may impact vocational and educational environments as well as what accommodations may be needed for college students that have Attention Disorder. The affect and impact of ADD/ADHD was determined by randomly administering 248 surveys to students in classes at two universities: the University of Wisconsin-Stout and the University of Wisconsin-Eau Claire. The Criteria used within the survey were directly

taken from the Diagnostic and Statistical Manual of Mental Disorders (4^{th} Edition, 1994). The results indicated that Depressive Disorder and Anxiety Disorder were more common among college students, than Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder. The results reflected that students who marked that they had been formally diagnosed with ADD/ ADHD, Depressive Disorder, Anxiety Disorder, Learning Disorder, and/or Traumatic Brain Injury also indicated symptoms of one or more of the other disorders mentioned. This showed that combidity exists. Another conclusion that this study revealed was that students who had not marked a previous diagnosis, checked many criteria for the various disorders focused on within this study.

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CHAPTER ONE

Introduction

Attention Deficit Disorder (ADD) and Attention Deficit Hyperactivity Disorder (ADHD) are simple labels for complex issues that in the end have no defined answers. Answers, are opinions that tumble all over one another frequently sparking even more questions. What exactly is Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder? What causes it and who does it affect? Are symptoms of comorbid disorders consistent with those of ADD and ADHD? How do attention deficits affect the daily lives of the people who have been properly diagnosed? These questions and many more have intensified the controversy that surrounds both ADD and ADHD.

Many aspects of Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder are intricate, meaning that both disorders have no definite explanations, just theoretical viewpoints. The only part of the ADD/ADHD that has been concretely established is that it is an individualized disorder. This means that a person with ADD/ADHD should not be diagnosed and treated simply by being compared to another. A reason for this is that appropriate diagnosis and treatment for one person may not be appropriate for another.

The disorder of Attention Deficit/Attention Deficit with Hyperactivity, is extremely misunderstood. It usually begins at an early age in life and in many instances continues on into the life of the adult. The focus of past research regarding this topic has typically revolved around children. According to a Publisher of the New England Journal of Medicine (Rosen, 1996), Attention Deficit Disorder and Attention Deficit

Hyperactivity Disorder are predominately the most common childhood disorders. According to this source, characteristics of ADD/ADHD frequently are seen in children. A reason for this is that kids already exhibit these specific behaviors; therefore, making unusual behavior or behavior problems more noticeable. According to a report from Onhealth (Unknown Author, 1998) after the completion of many studies dealing with the issues of ADD and ADHD, it has been estimated that approximately 20% of school age children suffer from attention disorders in the United States. According to the American Academy of Child & Adolescent Psychiatry (Benson & Dulcan, 1997), approximately 65% of children will continue to have ADD/ADHD into adulthood. According to Harvey Simon, a physician at the Massachusetts Institute of Technology (1998), diagnosis of adults with attention disorders is on the rise. According to Simon, nearly 800,000 adults were prescribed medication for the disorders in the United States in 1997.

Many studies have been pursued in the effort to understand what impact an attention disorder has on a child's life; however, adults with ADD/ADHD appear to be a new phenomenon. Within the past few years, research has been completed with the intent to provide answers as to how the disorder may affect adults. The comorbidity of other disorders has also become a recent issue for people experiencing attention deficits. Comorbidity refers to aspects of other disorders that may impact a person along with existing symptoms of Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder. It is important to review comorbid disorders along with ADD/ADHD. A reason for this is that other disorders may possess similar, if not identical symptoms; therefore,

making misdiagnosis and underdiagnosis a critical issue.

Research is extremely crucial for understanding how ADD/ADHD affects adults. Individuals 18 years of age and older have a tremendous impact on American society. According to The Dewar's Guide to Career Development (Bechtel, Irwin, Murray, Reginald, and Rosenthal, 1983), many Americans spend approximately 80% of their adult lives in gainful employment. According to this book, people devote an average of 38 hours per week to work. Most adults find work to be of prime importance. Work itself has a lot of influence on American society. Some critical aspects that influence Americans vocational choices are economic, social, and psychological factors- the area one chooses to live in, the people one chooses to associate with, and the self-esteem of the individual. People have many different reasons for pursuing their vocational goals. Education also has an impact on the vocational path a person may choose to follow. For example, some occupations require certification or a degree from either a technical school or college.

Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder can affect a person in both educational and vocational situations. How much impact an attention disorder has on a person depends on the extent of the disorder as well as on the person. The situation may become even more difficult for a person if their attention disorder is accompanied by a comorbid disorder that has similar symptoms. This is due to the fact that if other disorders coincide with ADD/ADHD, they may be undiagnosed and furthermore may not be treated.

Statement of the problem

Research on the impact that ADD/ADHD has on the lives of adults has been limited when compared to how much has been performed regarding its effect on children. Adults make up the majority of the workforce as well as occupy a large percentage of education. ADD/ADHD affects many adults; therefore, it is important to perform research in order to understand what impact ADD/ADHD has on them. A study can be useful in not only understanding the effect that attention disorders have on adults, but also because it can provide data on different accommodations that have or can be made to help make vocational and educational environments more compatible with the needs of a person.

The purpose of this research study is to determine what bearing ADD/ADHD has on adults while attending college and while at work. The sample consists of students at two universities in Wisconsin, during Fall Semester, 2000. In the Fall Semester, an anonymous survey will be distributed to general education classes at each university. The survey will address Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder and how it affects college students attending school. It will focus on accommodations that college students need as well as inquire about difficulties that individuals are confronted with at work, due to their disability. Finally, the survey will examine comorbid disorders and what effects they may have both educationally and vocationally in addition to having a primary diagnosis of ADD/ADHD.

Research questions

This study has three main research questions. They are:

1. How prevalent is Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder in college students in West Central Wisconsin?

2. Do college students with Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder possess underlying symptoms of comorbid or other related Disorders that may play a critical role in impacting educational and vocational environments?

3. What accommodations are needed for college students that have Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder (with or without comorbid disorders) in educational and vocational settings?

Definition of terms

For clarity of information the following terms need to be defined. They are:

1. Comorbid [Co] According to The American Century Dictionary (1997) this word means "jointly, mutually, together with another or others'" (p.109). [Morbid] According to The American Century Dictionary, this word means "of the nature of or indicative of disease" (p.374).

2. Population According to Thomas Crowl (1993), the definition of population is "the entire group of people to whom researchers wish to generalize the findings of a study, including persons who did not participate in the study" (p.412).

3. Sample According to Crowl, a sample is a subset of the population.

Assumptions and limitations

There are several assumptions that are apparent in this research. One assumption is that the sample of participants will consist of people that have Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder. It is also assumed that the results will conclude that college students with ADD/ADHD are somehow affected in both educational and vocational settings due to their attention disorder. Another assumption regarding the results of the study is that individuals with ADD/ADHD need accommodations of some sort in school and at work.

Several limitations have been identified in this research. First of all, the survey was only distributed to universities in West Central Wisconsin. Another limitation is that individuals that participate in the research may not provide honest answers. This is a limitation because dishonest answers may produce inaccurate results. Another limitation is that people may be absent from class on the day that the survey is distributed; therefore, the number of participants in the sample may be affected. Another limitation is that inappropriate questions may be asked on the survey, providing information that is irrelevant to the research questions. This can be a limitation because if the researcher is seeking information that is irrelevant to the findings with the intent that the data will be useful, pertinent information might be missed.

There are many assumptions that are also limitations in this research. One assumption is that by utilizing information taken from the sample, the results will be generalizable to the entire population. This assumption is a limitation, because the results

of the survey may not accurately represent the entire population. This is due to the fact it is impossible to predict the distribution of age, sex, race, and ethnicity prior to conducting the research.

Another assumption made in this research that can also be a limitation is objectivity. It is assumed that the questioning method of the instrument is objective or was objectively developed. This means that the questions are unbiased. This can be a limitation because some of the questions may be subjective or biased; therefore, producing biased results.

CHAPTER TWO

Literature Review

Introduction

Attention Deficit Disorder and Attention Deficit Hyperactivity Disorder have two separate meanings, even though they are similar in nature. In the past, the disorders were placed into the same diagnostic entity. Since ADD and ADHD are two distinct disorders, it is important to provide a definition of both of them. It is extremely critical to clarify the meaning ADD/ADHD, so that there is a unified understanding of what is being focused on throughout this research.

The purpose of chapter two is to provide background information regarding Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder. This chapter will present the components of ADD/ADHD and a formal definition of Attention Disorders, along with a brief overview of current statistics regarding the disorders. This chapter will also describe symptoms and characteristics of Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder. Chapter two will explore the different causes and ways of diagnosing ADD and ADHD. In addition, studies regarding how Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder affects adults and what research has been performed focusing on the impact the disorder may have educationally and vocationally will be addressed. Finally, chapter two will discuss some documentation of the comorbidity of ADD/ADHD and how related disorders can have an impact on adults both educationally and vocationally.

Statistics

According to epidemiological data (Jaska, 1998), it has been estimated that 4% to 6% of the population in the United States has Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder. An organization referred to as Children and Adults With Attention Deficit Disorders (CHADD) (Unknown Author, 1997) calculated that between 5% and 10% of the total percentage of those that have been diagnosed with attention disorder have partial symptoms of ADHD or they have the presence of comorbid disorders.

According to CHADD, although symptoms of ADD/ADHD may manifest during childhood, the disorders have increasingly been recognized to have an affect in the lives of adults. It has been determined that approximately 65% of children with Attention Disorders progress into adulthood (Benson & Dulcan, 1997). Thus, in 35% of children who were diagnosed with ADD/ADHD, their symptoms tend to diminish into adulthood. Comorbid disorders, in children as well as adults, has also become a new phenomenon. An article in Well-Connected- In-Depth Health Information (1998) stated that almost 80% of children who have been diagnosed with the disorder have co-existing disabilities. The number is phenomenal, especially considering the fact that a tremendous amount of children continue to have Attention Deficits as an adult.

What is attention deficit disorder/attention deficit hyperactivity disorder?

Definition: five components

There are five components that construct the definition of both Attention Deficit Disorder and Attention Deficit Hyperactivity Disorder. According to Doctor's Sam and Michael Goldstein (1998) they are: impulsivity, inattention, hyperactivity and overarousal, difficulty with gratification, and emotions.

The impulsivity aspect of attention disorder refers to the inability to think before reacting. According to Goldstein and Goldstein, impulsive people have difficulty with logically weighing out the consequences of their future actions and likewise have trouble relating the consequences of past actions to those of the future. This means that at times they have difficulty distinguishing between experience and response.

Another component of ADD/ADHD is inattention. According to Goldstein and Goldstein, inattention refers to a person's inability to remain focused as compared to other people their age. Inattention can go away with time. The authors state that as people age, they tend to develop ways that assist them in staying on task. The ability to stay on task is represented by a person being able to alleviate environmental stimuli that can be a distraction from what they are doing, resulting in the task becoming uncompleted.

A third aspect of Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder is hyperactivity. According to the American Academy of Child & Adolescent Psychiatry (1997), hyperactivity indicates a lack of self-control in certain situations. An example of hyperactivity is the inability to sit for extended periods of time. Becoming overly aroused with a great speed and intensity of reaction is another example that relates to a person with hyperactivity. According to the Goldsteins', overarousal refers to the

inability to separate thought from emotion; therefore, reacting in an emotional state that is overly dramatic and not normal when compared to people of the same age.

Difficulty with gratification can be another element of ADD/ADHD. According to a Psychological Record (Kollins, Lane, & Shapiro, 1997), this aspect of ADD/ADHD stems from impulsivity. Conformable to this source, this element surrounds impulsive people because they tend to react quickly, frequently, and without thought. This makes it difficult to maintain a positive reward system. Meaningful rewards are positive reinforcements that encourage positive behavior. Without rewards, normal behaviors may appear to diminish. This is due to the fact that impulsive behavior, with lack of thought, may lead to negative reinforcement that can promote abnormal and negative behavior.

The last aspect of Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder is emotions. Emotions were not included in the previous understanding of ADD/ADHD. It was not until recently that this characteristic was thought of to be of prime importance. According to Goldstein and Goldstein, people with an attention disorder often experience many emotions at once. This can be due to the fact that they may be impulsive and may be easily overaroused. These authors state that people with Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder may not develop the appropriate skills needed for interpreting their emotions. This can be due to the combination of impulsiveness, overarousal, and lack of rewards for good behavior. All of these elements contribute to a person not being able to relate their life experience to the emotions that they may be feeling at a particular time.

Definition: formal

It has been determined that Attention Deficit Disorder and Attention Deficit Hyperactivity Disorder are distinct; however, both are made up of similar elements. Ironically, they are similar yet distinct, making diagnosis difficult. Due to their similarity the two disorders are often combined and used interchangeably.

According to the Fourth Edition of the Diagnostic and Statistical Manual of Mental Disorders, also known as the DSM-IV (American Psychiatric Association, 1994), Attention Deficit Disorder is a subset of Attention Deficit Hyperactivity Disorder, with the predominant aspect being inattention; therefore, creating a slight difference between the two. However, it should be stated that although the disorders have been classified separately, diagnosis can remain as one or the other, or may be a combination of the two.

Attention Deficit Hyperactivity Disorder is more commonly diagnosed than Attention Deficit Disorder. According to the On-line Medical Dictionary (Unknown Author, 1998), Attention Deficit Disorder with Hyperactivity is "a behavior disorder originating in childhood in which the essential features are signs of developmentally inappropriate inattention, impulsivity, and hyperactivity" (on-line). The most common aspects of Attention Deficit Disorder with Hyperactivity are hyperactivity and impulsivity, although inattention may play a large role.

DSM-IV classification and symptoms of ADD/ADHD

The distinction between the two disorders is largely within its terminology; therefore, confusion is somewhat inevitable. Three different subtypes have been

identified in order to separate the meanings and to make diagnosis less difficult. The three subtypes have been classified as: *The Combined Type, The Predominately Inattentive Type,* and *The Predominately Hyperactive-Impulsive Type*. The guideline for ADD/ADHD outlined in the Diagnostic Manual of Mental Disorders (4^{th} edition, p.83-85) are as follows:

A. Either (1) or (2)

(1) six or more of the following symptoms of inattention have persisted for at least six months to a degree that is maladaptive and inconsistent with developmental level: Inattention

(a) often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities.

(b) often has difficulty sustaining attention in tasks or play activities.

(c) often does not seem to listen when spoken to directly.

(d) often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions).

(e) often has difficulties organizing tasks and other activities.

(f) often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework).

(g) often loses things necessary for tasks or activities (e.g. toys, school assignments, pencils, books, and tools).

(h) is often easily distracted by extraneous stimuli.

(i) is often forgetful in daily activities.

(2) six (or more) of the following symptoms of **hyperactivity-impulsivity** have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Hyperactivity

(a) often fidgets with hands or feet or squirms in seat

(b) often leaves seat in classroom or in other situations in which remaining seated is expected

(c) often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)

(d) often has difficulty playing or engaging in leisure activities quietly

(e) is often "on the go" or often acts as if "driven by a motor"

(f) often talks excessively

Impulsivity

(a) often blurts out answers before questions have been completed

(b) often has difficulty awaiting turn

(c) often interrupts or intrudes on others (e.g., butts into conversations or games)

B. Some hyperactive-impulsive or inattentive symptoms that caused impairment were present before age 7 years.

C. Some impairment from the symptoms is present in two or more settings (e.g., at school [or work] and at home).

D. There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.

E. The symptoms do not occur exclusively during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder and are not better accounted for by another mental disorder (e.g., Mood Disorder, Anxiety Disorder, Dissociative Disorder, or Personality Disorder).

Code based on type:

314.01 Attention-Deficit/Hyperactivity Disorder, Combined Type: if both Criteria A1 and A2 are met for the past 6 months

314.00 Attention-Deficit/Hyperactivity Disorder, Predominantly Inattentive Type: if Criterion A1 is met but Criterion A2 is not met for the past 6 months

314.01 Attention-Deficit/Hyperactivity Disorder, Predominantly Hyperactive-Impulsive Type: if Criterion A2 is met but Criterion A1 is not met for the past 6 months

Upon reviewing the DSM-IV diagnostic criteria, it is important to mention that the behaviors may manifest in several life areas such as school, work, social

environments, and at home. However, it is rare when the behavior is carried out at the same level in each situation. Symptoms may exist or be nonexistent in certain environments. It should also be noted that some symptoms may worsen or get better depending on the environmental stimuli (i.e. a classroom situation as compared to a one-on-one setting).

Causes of attention disorder

All sorts of research efforts have been made in the effort to determine the specific causes of ADD/ADHD. Although this disorder has no known causes, many theories have been established. Possible causes have been attributed to both genetic factors and biological influences, environmental impacts, and neurological situations such as brain trauma. The only facts that are known in regard to the cause of attention disorder is that it is not caused by poor parenting, lack of positive family influences, insufficient teachers and schools, and food allergies or increased sugar intake (Jaska, 1998).

Genetic/biological

Are genetic factors linked to Attention Deficit Disorders? According to Dr. Russell Barkley (1998) scientists have recently been able to prove that genes are linked to ADD/ADHD. Although many genes have been researched in the effort to explain how genetics may be a cause of ADD/ADHD, Barkley states that recent research has suggested that there is a link between a gene called DRD4 repeater gene and attention disorder. This gene has been connected to most attention deficit cases, but not all of them.

There is a great deal of evidence that suggests that ADD/ADHD runs in families. According to an article written by Dr. Jaska (1998), titled "Fact Sheet on Attention Deficit Hyperactivity Disorder (ADD/ADHD)", if a family consists of one person with the disorder, there is a 25% to 35% chance that another family member will or already has been diagnosed with ADD/ADHD. When compared to the general population, this statistic reduces to 4% to 6%. This suggests that there is a link between genetics and attention disorder.

Other studies have shown that biological influences can have an impact on genetic factors. In Dr. Jaska's article, it is stated that studies have been performed using brain scans in order to view brain response to environmental stimuli that requires attention. Researchers have focused the majority of their research on glucose levels in the brain at times when the brain is inhibiting impulses and controlling attention. They found that glucose levels are lower in people that have been diagnosed with ADD/ADHD.

A study performed by Hay, Levy, McStephen, Waldman, and Wood (1997) regarding inattention and impulsivity-hyperactivity in twins revealed that genetic factors are extremely important in ADD/ADHD. The twin study focused on almost 2,000 families with twins from the ages of 4-12. This study suggests that evidence is building in the effort to support the idea that Attention Deficit Disorder/ Attention Deficit Hyperactivity Disorder is genetic. The results of this study concluded that approximately 90% of twin children with ADD/ADHD had a twin sibling that had also been fully diagnosed. The conclusions state that most likely there is a gene that is inherited in most

of the diagnosed cases. This study also reinforced the theory that the gene most commonly identified in ADD/ADHD is the one that affects the neurotransmitter dopamine, otherwise known as the dopamine D4 receptor gene.

In order to collaborate with the above data, an article written in the American Academy of Child and Adolescent Psychiatry (Benson and Dulcan, 1997) stated that genetics are a substantial link to the cause of ADD/ADHD. This article says that siblings of children with Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder have two to three times greater risk of being diagnosed. This risk increases if one or both parents have been diagnosed with attention disorder.

Prenatal

Many factors surround the theory that ADD/ADHD can be attributed to behaviors or problems during pregnancy. One factor is maternal smoking. An article written in Well-Connected- In-Depth Health Information (1998), stated that fetus's that are exposed to nicotine products while in the womb have a greater risk of developing ADD/ADHD. Exposure to alcohol or other drugs is also a factor. This article also discussed the exposure of toxins such as dioxins and polychlorinated biphenyl (PCBs). It has also been thought that exposure to lead (a metallic element) as well as these environmental toxins increase the risk in children for ADD/ADHD. Another problem associated with pregnancy is premature birth. Premature birth can hinder the proper development of the central nervous system that can cause a baby to become more susceptible to disorders.

Neurological/traumatic brain injury (TBI)

Neuropsychology is a discipline that partakes in assessing general brain function. According to Zametkin and Rapport (1987), through increased technology and neuro-imaging techniques, it is possible to document the presence of ADD/ADHD in the brain. According to Zametkin and Rapport, it is possible to observe symptoms of the disorders in the frontal lobe area and in the hypofrontality of the brain. An example of this would be difficulties in planning, modification of certain behaviors, organizational skills, basic problem solving, and the sequencing of events.

Neurological theories can also be linked to the dopamine neurotransmitter (D4 receptor gene). This gene is responsible for the arousal and alertness of the brain. If parts of the brain were damaged in a traumatic experience, the brain would not be able to function accurately. According to an article titled "Advances in Neuropharmacological Rehabilitation for Brain Dysfunction" (Zasler, 1992) certain parts of the brain, such as the brain stem and neural pathways, hold and control chemicals such as noradrenaline, adrenaline, and dopamine. Therefore, if traumatic brain injury occurs, some parts of the brain that are responsible for controlling chemical activities through the pathways may be damaged and may be effected on a long-term basis. This type of injury can hinder areas in the brain such as memory, organization skills, as well as other necessary skills. This can be tied to attention disorders due to the fact that symptoms may replicate those of ADD/ADHD.

Diagnosis

Informal

Almost all people that have been diagnosed with Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder have been diagnosed informally. What this means is that a diagnosis has been made without the use of standardized medical equipment. According to the DSM-IV (1994) some symptoms of attention disorder must occur before the age of seven. The manual also states that diagnosis can not be accurate if the symptoms occur along with other disorders. Examples of other disorders are Developmental Disorder, Schizophrenia, or those that have been diagnosed as Psychotic Disorders.

According to the American Academy of Child and Adolescent Psychiatry (AACAP) (Benson and Dulcan, 1997) assessment of a child for ADD/ADHD can consist of five different elements. These features include interviews, rating scales, a medical evaluation, and tests. Interviews usually occur with the person that is being diagnosed as well as other significant people within their lives such as parents and teachers. According to this article, the prime purpose of interview is to place the child in a behavior control situation in order to see if they are able to maintain their attention. It is also used to rule out other possible causes that may contribute to the child's inability to remain focused. Parent and teacher rating scales are often used in diagnosis. These checklists can be effective for determining which behaviors are more prevalent. Rating forms have been found to be useful in determining which behaviors to look for within an interview setting.

Another aspect of diagnosis that may be utilized is medical evaluation. An evaluation is used in order to gain information regarding a person's medical history.

According to the AACAP, the evaluation includes looking at records regarding past use of medication, illegally, through prescription, and over-the-counter. Medical examinations also look at possible environmental concerns such as lead level, which is considered by some experts to be a possible cause of ADD/ADHD. A medical evaluation can also include hearing, vision, and thyroid function tests.

Currently, there is no written test for the diagnosis of ADD/ADHD. The AACAP states that medical procedures can be performed in order to indicate the presence of focal degeneration or seizure disorders. This can be done with the use of an EEG or by consultation with a neurologist. However, using the computerized tests as a way of diagnosing attention disorder has been found to be ineffective.

Functional MRI

Through research, it has been determined that the flow of blood to certain parts of the brain is different in people who have ADD/ADHD. Dr. David Rosen (1999) looked at a study in the November Proceedings of the National Academy of Sciences. In this study, a brain scan called a functional magnetic resonance imaging (fMRI) was used to look at the differences in blood flow for boys that had been informally diagnosed with ADD and ADHD. According to the Hudson Valley Business Journal (Unknown Author, 1998) this brain scan is extremely useful for diagnosis of attention disorder. With the use of the fMRI, misdiagnosis could be dramatically reduced. Information provided in the article suggested that although the fMRI could be useful, it is extremely expensive and currently not covered by insurance; therefore, it has not been widely used.

SPECT scan

Another medical procedure that has been developed for the diagnosis of Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder is called a single photon emission computed tomography (SPECT) scan. Details of the scan were presented in an article titled "SPECT Scan More Precisely Targets Attention Deficit Disorder in Children" (Sandrick, 1997). Similar to the functional magnetic resonance imaging, this scan is also used to measure the flow of blood throughout the brain. A study performed while using the SPECT scan on people that had previously been diagnosed with ADD/ADHD, showed a reduced blood flow and a lower metabolism in the brains (93%) of the participants. According to this article, the SPECT scan could be useful for diagnosis as well as for the monitoring of medications that are used to treat attention disorder.

Diagnosis of adults

Diagnosis of adults is similar to the diagnosis of a child, however it is more difficult to do. According to an article written Swanson and Wilens, 1997, since there is no biological or psychological tests for diagnosis of ADD/ADHD, most diagnosis of adults is informal and based on clinical history. Swanson and Wilens state that diagnosis of an adult is comprised of the evaluation of a person's intellectual, social, educational, and vocational history. Questionnaires are often used, due the fact that diagnosis of adults with ADD/ADHD has become increasingly more common; therefore, standardized tools have become readily available. The authors also state that diagnosis of

an adult is based on the three different subtypes that are presented in the Diagnostic and Statistical Manual of Mental Disorders (4th ed.).

Problems with diagnosis

The diagnosis of attention disorder has been in the controversial hotseat for many years. In a video titled "LD-LA Learning Disabilities-Learning Abilities: ADD/ADHD/LD: Understanding the Connection" (Potts & Potts, 1997), one of the most prevalent concerns surrounding the issue is that ADD/ADHD is over-diagnosed. This position has been derived from the fact that diagnosis of attention disorder has become so fashionable for people exhibiting inattentive behaviors, that it in a sense has become easy. As a result, over-diagnosis of the disorder and under-diagnosis of other disorder has become common.

According to Dr. Scott Benson and Dr. Mina Dulcan (1997), many people have been mislabeled with attention disorder, due to the fact that symptoms of other disorders occur but are overlooked because they resemble those of ADD/ADHD. According to a book titled "Attention Deficit Disorder Misdiagnosis: Approaching ADD from a Brain-Behavior/Neuropsychological Perspective for Assessment and Treatment" (Fisher, 1998) similar disorders include impaired hearing or vision, seizure disorder, traumatic head injury, malnutrition, insomnia, depression, bipolar disorder, allergies and asthma, mood disorder, and mental illness. All of the disorders have similar symptoms to Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder and may be the cause of a persons inattention or may occur comorbid along with it. However, due the fact that

diagnosis of attention disorder appears to occur so frequently, a concern is that the diagnosis of other disorders is overlooked; therefore, raising questions regarding misdiagnosis.

Another problem concerning the misdiagnosis of ADD/ADHD is seen through the diagnosis of people of different minority groups. Dr. Bob Shoda, a Behavior Disorder Specialist (Sears, 1996) stated that there is a concern regarding:

> a number of minority students being identified for ADHD. And what we're looking at is we're looking at a group of kids that may not culturally fit within a classroom. And because they don't fit, their behavior is seen as not being able to pay attention, being impulsive, not following directions that teacher's give them, being just generally difficult to deal with. As a result of that, being referred for possible ADHD (video).

Medication

According to CHADD (Swanson and Wilens, 1997) psychostimulants are the most common treatment method used for people who have been diagnosed with attention disorder. CHADD states that at least 70% to 80% of children and adults use this medication to help manage their ADD/ADHD symptoms. Central stimulants are used to increase attention levels and decrease restlessness in people that have been diagnosed with the disorder.

Methylphenidate (Ritalin) is the most commonly prescribed psychostimulant. According to Child and Adolescent Psychopharmacology News (Weiss, 1996), Ritalin

has had few associated short-term side effects. It has also been found through research that has been performed over a 30 year time period, that long-term side effects are almost nonexistent. Ritalin is administered to individuals in order to increase the cognitive and thinking ability of a person who has ADD/ADHD. An article in the Journal of Consulting and Clinical Psychology (Gnagy et al., 1992) states that throughout studies, it has been proven that the use of Methylphenidate improves the symptoms of attention disorder. This allows the individual to focus for longer periods of time, maintain concentration without being distracted, and process information.

How common is ADD/ADHD in adults?

In the past, Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder was typically diagnosed in children. Diagnosis of adults was rare prior the early 1990's. However, recent evidence has shown that the disorder is also prevalent in adults. An article posted on the organization web site of Children and Adults with Attention Deficit Disorder (Unknown Author, 1999), declared that up to 70% of children with ADD symptoms, carry them into adulthood. Follow-up studies have determined that an estimated 2-5 million adults are affected by the disorder. According to an article in Well-Connected (Simon, 1998) Ritalin was prescribed to nearly 800,000 adults in 1997, which is three times the number that was prescribed in 1992. Hallowell, Miller, and Rately (1995) state that most adults were diagnosed in the 1990's due to seeking professional guidance regarding relationship issues. In a study done by Millstein (1998) on approximately 150 male and female adults with ADD/ADHD, it was concluded that 56%

of the sample had the combined subtype, 37% had the inattentive subtype, and only 2% had the hyperactive/impulsive subtype as defined by the DSM-IV. Nevertheless, diagnosis of ADD/ADHD has increased throughout the years, as well as the need for research in order to gain a better understanding of how the disorder affects adults.

How common is comorbidity and ADD/ADHD?

Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder is viewed by many individuals as being overdiagnosed or misdiagnosed. In a study done by Goodman and Poillion (1992), forty-eight ADD/ADHD articles and books were reviewed to determine whether or not attention disorder had its own, distinct set of symptoms. The study results state that within the literature sixty-nine symptoms and thirty-eight causes for ADD/ADHD were noted, thus providing evidence that there is no set standard or understanding for properly identifying the disorder. By having numerous symptoms and causes not agreed upon by many people, it creates the question of whether or not ADD/ADHD symptoms exist within themselves or along with other disorders that have the same factors.

With all of the symptoms and causes of ADD/ADHD, is comorbidity an issue? Edwards did a study in 1996 on sixty children that had gone to a clinic for behavioral problems. Out of the sixty children, fifty-one had been diagnosed with ADD/ADHD. Sabatino and Vance did a study in 1994 on seventy-five children that had been diagnosed

with having attention disorder. They questioned misdiagnosis or over-diagnosis because the children were not responding to medication or educational forms of intervention. The researchers had a theory that other disorders were being overlooked. The study results indicated that approximately one-third of the children had been inappropriately diagnosed and were than re-diagnosed with another disorder. Sabatino and Vance also concluded that ADD/ADHD has similar, if not identical symptoms of Mental Illness and more commonly Learning Disabilities. Another study performed by Jiron, Sherrill, and Chiodo in 1995, focused on comorbidity and ADD/ADHD. The researchers looked at the medical charts of children that had been diagnosed with attention disorder. They found that over seventy-five percent of the children experienced other disorders such as Depression, Postconsussion, Adjustment Problems, and Learning Disabilities. In 1992, Beiderman performed a study on a large group of children whom had all been previously diagnosed with ADD/ADHD. The study results concluded that over half of the sample had comorbid disorders such as Depression, Anxiety, and Conduct Disorder.

Statistics on comorbidity

In 1993 (McConaughy & Skiba), research was performed on children that have been diagnosed with ADD/ADHD has shown that children with comorbid Conduct Disorder are more likely to be depressed, be defiant, and are at higher risk for adult criminal activity. Another study done by Cohen (1993) concluded that children who had been diagnosed with attention disorder were more likely to have the comorbid disorder of

chemical abuse. The results of the study also state that the prevalence rate for boys was twice as high as that of girls.

What disorders are comorbid and associated with attention disorder?

It is important for the purpose of clarity in this study to note that there are known disorders that are comorbid and associated with ADD/ADHD. It is crucial to address areas of comorbidity in order to determine whether or not attention disorders are over-diagnosed. Many researchers have shown that misdiagnosis of ADD/ADHD frequently occurs due to parallel symptomatology of other disorders. The most common comorbid disorders associated with Attention Deficit Disorder are Learning Disabilities such as Dyslexia, Dyscalculia, Dysgraphia, and Spelling Apraxia. Problems in learning are highly correlated with people that have attention disorder. Studies have shown that individuals with difficulty in learning often posses similar behaviors as people with ADD/ADHD. A study done by Eliot and Resta in 1994 concluded that people with Learning Disorders have significant problems in the areas of reading, writing, and composition. By having trouble in these areas, a person may exhibit symptoms of inattention, lack of motivation, and problems with processing information. Another study performed in 1995 (Nadeau, S.E.) concluded that people with Dyslexia, whom have difficulty with language skills, often have trouble processing language; therefore, are unable to function at a normal level. This can be hard for individuals, because they have difficulty communicating with others and tend to be viewed as inattentive or that they

neglect important tasks, when in reality they simply did not understand what they were suppose to do.

Traumatic Brain Injury (TBI) is another comorbid disorder associated with Attention Deficit Disorder. Symptoms of TBI are so closely related to those of ADD/ADHD, that it makes it difficult to differentiate between the two. Symptoms entail inattention, inability to remain focused on tasks, impulsivity, inability to regulate responses, memory deficits, and difficulty with learning, information processing, and neural efficiency. Studies performed by Arcia and Gualtier (1994) and Cicerone (1996) both concluded that the symptoms of Closed Head Injury are in some cases identical to those of ADD/ADHD. These symptoms include a depressive state or inability to maintain attention, disinhibition, apathy, and irritability.

There are many disorders that overlap symptomatology with attention deficits. Some examples are Allergies and Asthma, Sleep Disorders, Developmental Disabilities, Epilepsy, and Multiple Sclerosis. Other disorders that have been proven to have similar qualities of ADD/ADHD are Tourette's Syndrome, Autism, Chemical Addictions, Fetal Alcohol Syndrome, Chronic Fatigue Syndrome

How does attention disorder affect adults in regard to education?

Statistics

Statistics regarding the educational outcome of adults with ADD/ADHD from the Archives General Psychology (Mannuzza et al., 1993) suggest that approximately 25% of students with ADD/ADHD do not complete school. This was compared to 2% of students

that do not complete school out of the control population. A study published in the Journal of American College Health (Heiligenstein et al., 1999) was complied of college students with and without attention disorder. It focused on the academics of students who have been diagnosed with ADD/ADHD. The results of the study indicated that those students with the disorder had a mean grade point average that was significantly lower than those individuals without the disorder. It has also been said that it is more strenuous for women in college than men. Reasoning behind this theory is that the roles in society have become more demanding for women (Bramer, 1997). For example, women are commonly expected to be the homemaker and help out financially by maintaining employment. By having to balance all of the roles on top of having attention disorder, it appears to be more difficult for women to achieve academic success. Although, many men and women with ADD/ADHD are successful in college (Heilingstein et al., 1999), research shows that students with ADHD were more likely to be on academic probation, and appeared to have more academic problems. It has also been noted that most adult symptoms appeared to be more related to learning disabilities rather than symptoms of ADHD as described in the DSM-IV. This raises the question of whether attention disorder is appropriately diagnosed or if there is an underlying disorder that encompasses the same or similar symptoms of ADD/ADHD.

Legislation regarding education

Educational services must be provided to individuals who have been diagnosed with Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder. In 1991

(Davila, MacDonald, & Williams), the United States Department of Education issued a policy that was intended to address the role of state and local educational systems, through federal mandate, that the needs of children with attention disorder are met. This policy addressed the fact that school districts should take all steps necessary to ensure that children with the disorder are able to attend regular classes as well as special programs.

More federal laws have been implemented in the effort to ensure the rights of students that have been diagnosed with ADD/ADHD. According to an article found in ERIC Digest titled "Attention Deficit Disorder: Providing an Appropriate Education to Children with Attention Deficit Disorder" (Learning Disabilities Association, 1992) both the Individual with Disabilities Act (IDEA) and Section 504 of the Rehabilitation Act of 1973 ensure educational rights. IDEA provides guidelines regarding the right and responsibilities of the state and local districts concerning free appropriate public education (FAPE) and how the services should be provided. Section 504 of the Rehabilitation Act was created to prohibit discrimination of students with attention disorder as well as to make sure that the student is actively involved in their educational planning. The policy was also written to ensure that state and local government would provide adequate funding for educational programs.

What are the legal rights of college students? This question has been addressed lately due to the growing number of adults being diagnosed with ADD/ADHD. Patricia

H. Latham et al. (1998) a lawyer who specializes in Attention Deficit Disorder as well as Learning Disabilities, wrote an article for the National Center for Law and Learning Disabilities regarding attention disorder and how it affects college students. Latham discussed the legal rights of students that have been diagnosed with the disorder. She states that if the disorder limits two or more life activities, that universities are required by federal statute to follow the Rehabilitation Act of 1973 (Section 504) and the Americans with Disabilities Act (ADA). All universities must follow the Rehabilitation Act if they receive federal funding. The ADA applies to public as well as private colleges and universities. Information in the article said that the purpose of the ADA is to prohibit discrimination of students that have ADD/ADHD.

Accommodations

An article in the Journal of Postsecondary Education and Disability (Latham, 1995) said that accommodations must be made for students that have been diagnosed with ADD/ADHD at no additional charge from the institution. These accommodations include: providing an environment that is less distracting, assistance in prioritizing work, providing a concrete list of expectations, and repeating instructions (orally or in writing) if needed. Other possible strategies include reducing class loads, taped lectures and books, changing assignments (deadlines), and providing extra time for examinations.

How does attention disorder affect adults vocationally?

It is incorrect to say that all adults with ADD/ADHD have difficulty in the workplace, due to their disorder. Every working individual experiences some

employment barriers throughout their lives, whether they have attention deficits or not. However, it is not uncommon to think that adults with ADD/ADHD do not struggle more than usual within certain vocational areas. This is not to say that people with attention disorder can not be successful in the workforce, because they can thrive professionally. Although some people work harder than others, adults can learn how to adapt to and use their disorder to their advantage. By understanding why a person feels more restless, is easily distractible, and has difficulty remaining on task, the person can determine appropriate accommodations that will help them with daily work activities. It is important that adults (those with attention disorders and those without) understand the disability, so that they can not only accurately interpret a person's behaviors but also so that they can structure work environments accordingly.

Adults with ADD/ADHD make career choices using the similar criteria as people that do not have attention disorder. An article in FOCUS (Fellman, 1999) states that adults with attentions disorders tend to focus on their strengths rather than their weaknesses when deciding their vocational goals. Placing emphasis on one's strengths is helpful to every person, because it reduces a person's chance for failure. This article states that people make career choices based on their interests, past accomplishments, personality, feelings, values, aptitudes, personal energy, dreams, education, the job market, and personal challenges.

People with attention disorder often experience problems in the workplace due to their disability. According to an article in ADDvance (Nadeau, 1997) there are ten

aspects of ADD/ADHD that can be difficult for an individual in the workplace. One of these areas is distractibility. People with ADD/ADHD are often easily distracted. This can take place either internally or externally. Other problems that may occur are impulsiveness, hyperactivity, poor memory, boredom, time management difficulty, procrastination, and accomplishing long-term projects and paperwork. Some people with Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder struggle with interpersonal relationships. Difficulty in this area stems from a person behaving in a way that is viewed as inappropriate by their co-workers and/or employer. Examples of these behaviors are monologuing (being unaware that other people would like to interact in the communication), interrupting, and being blunt (stating things in inappropriate ways).

It is important for both individuals with attention disorder and those without to understand how it affects adults in their work environments. This is crucial, so that an individual with attention disorder can be successful on the job. If everyone is aware of what difficulties may arise, then appropriate accommodations can be made and an individual can function within a "ADD-Friendly Work Environment" (Nadeau, 1997).

There many different accommodations that can be made on the job in order to help a person with ADD/ADHD succeed. According to Dr. Kathleen Nadeau (1997), accommodations are useful as well as necessary for most individuals with attention disorder. Examples of possible work accommodations are flex-time (so that an individual can have more time to accomplish their task), use of head phone (to eliminate outside influences and noises), and use of private rooms (to get work done without being

distracted). Other possible accommodations are maintaining a list of things to do, along with times and dates that they need to be done by, taking notes on what people say, and carry beepers or timers as reminder tools. Close supervision when time lines need to be met is helpful as well as working with others on long-term projects and breaking the project down into stages. Finally, minimizing paperwork by creating an easy filing system, negotiating tasks that coincide with a person's strengths, and scheduling interruption-free time blocks are useful.

CHAPTER THREE

Methodology

Introduction

Chapter three will discuss the methodology of the study. This study used descriptive research methods. This chapter will describe the research questions, the subjects that participated in the study, and the process through which they were selected. It will also identify the instrument used to collect information as well as its content, validity, and reliability. In addition, the process of data collection and the procedure for data analysis will be discussed. Finally, this chapter will conclude with some limitations to the methodology used.

Research Questions

This study has three main research questions. They are:

1. How prevalent is Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder in college students in West Central Wisconsin?
2. Do college students with Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder possess underlying symptoms of comorbid or other related disorders that may play a critical role in impacting educational and vocational environments?
3. What accommodations are needed for college students that have Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder (with or without comorbid disorders) in educational and vocational settings?

Description of Subjects

The subjects for this study were all enrolled at two universities in West Central Wisconsin during Fall Semester, 2000. Originally, three universities were selected for participation in the study. They were the University of Wisconsin- Eau Claire, the University of Wisconsin- Stout, and the University of Wisconsin- River Falls. However, only two universities participated in the research, the University of Wisconsin- Stout and the University of Wisconsin- Eau Claire. Academic classes at each university were asked to participate in the study. Class size ranged from 20-50 students and one class had 156 students. The classes at each university were randomly selected. Subjects included freshman, sophomores, juniors, seniors, and graduate students. Males and females were both involved in the research. The age range of the subjects was between 18-51 years old. Information regarding the dispersion of students in the sample who have Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder and those who do not, along with those who have comorbid disorders, will be unknown until the data from the research has been collected. The study also included both full-time and part-time students.

Sample Selection

The sample of college students from each university was selected for the study because students at the universities provide a varied subset of the entire population of public university students throughout Wisconsin. The subjects were asked to participate in the study and were told that participation in the research was completely voluntary. A

written overview of the research was provided directly on the front page of the survey. The paragraph included the purpose of the research as well as addressed confidentiality. It was stated that information provided by the subjects would remain anonymous; therefore, the students were informed prior to participation that personal information would not identify them as having been a subject in the study. The data obtained from the participating sample was extremely useful, because it provided statistical information regarding the research questions. The participants were selected with intent that data gathered from them would help clarify Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder (with and without comorbid disorders) and how it affects college students both educationally and vocationally.

Instrumentation

An anonymous survey was developed for this study. Objectivity was extremely important throughout the development of the instrument. Many of the questions asked on the survey, were derived from the Diagnostic Manual of Mental Disorders (4^{th} edition, 1994). The idea of using a survey for the study was derived from the literature review. Many studies throughout the literature used the survey technique to gather data. From the studies reviewed, it appeared that a substantial amount of information was obtained through the use of a survey. Another reason for this type of instrumentation was the inclination that it would be less time consuming for the participants involved and also because it would produce results quickly.

The survey utilized two scales for measurement: nominal and ordinal. The nominal scale of measuring data consisted of questions that would be exclusive to one of two categories, for example Yes/No, Male/Female, and True/False. Another scale for measurement was a checklist. For example a category of events or actions was provided and the participant was asked to write an (x) next to all situations that applied to them. The students were also asked to respond to open-ended questions. The open-ended questions were used so that the subjects could provide unlimited information in written form. Through this type of questioning, information was collected that may not have been obtained through any other data gathering technique. The instrument was intended to measure data that related to the research questions. The technique used for measurement distribution was to tally up the total of marks listed in each section of the questionnaire to determine what percentage of the population consisted of the result. Open-ended questions were placed into categories regarding what accommodations college students utilized at school as well as while working.

Revision of the survey was not necessary. However, pre-testing was utilized prior to the collection of data so that necessary changes could be made in the instrumentation prior to data gathering. Pre-testing consisted of distributing the 25 survey's to various colleagues in the effort to eliminate flaws in the survey. Colleagues were asked to review the survey and provide feedback on the format of the instrument. Feedback on format regarded question formation and language usage. They were asked to critique the instructions of the survey in order to determine their level of difficulty as well as whether

or not the survey exhibited objectivity. They were asked to provide any additional comments that may have been useful in improving the instrument. The survey was timed during pre-testing and it was determined that it took approximately five minutes to complete the survey from distribution to collection.

Scoring was conducted by coding the nominal information. Microsoft Excel Sheets and data was entered into the computer for each area, so that specific data could be examined. The areas were grouped accordingly: demographic information, DSM-IV (1994) diagnostic categories, and marked diagnoses. The DSM-IV categories were then broken down according to each marked diagnosis and the criteria checked among the various disorders. A category for those individuals who had not marked having a previous diagnosis was also developed in the effort to determine whether or not they reported having symptoms of the various disorders focused on within the study. Each diagnostic category was broken down into components of number of positive responses, the average of positive responses per person, the number of questions per diagnostic category, and the percentage of positive responses per DSM-IV criteria within each category. Scoring for the open-ended questions was accomplished by grouping the responses to the questions asked. The two groups consisted of accommodations that college students with ADD/ADHD needed in order to be successful in educational and vocational environments. The instrument was developed specifically for this study; therefore, validity and reliability have not been documented.

Data Collection

The survey was either sent or taken to classes at each university and distributed among the students. The students were informed of the purpose of the research as well as their role in the study via written statements on the survey itself. Surveys were filled out by each subject and gathered directly after completion. A separate envelope was taken to each university for the collection of surveys and remained separate from the envelopes of other institutions involved in the study; therefore, making the results exclusive to each individual school, in the effort to determine the number of participants at each school.

Data Analysis

Once the research was performed, interpretation of the information began. Descriptive statistics were used to report the findings of the research. The completed surveys were gathered and scored so that the data received could be analyzed appropriately in order to determine the survey results. Portions of the nominal data were received in numerical form; therefore, the results were expressed in numerical averages and variability of the data. The purpose for using statistical averages and measures of variability was so that it was easy to understand how certain variables within the study were distributed between the universities. Most of the data analysis consisted of transforming the information into frequencies and percentages. Data analysis was developed in the effort to address the research questions.

Limitations

Various limitations due to the methodology may have affected the results of the survey. One aspect was the language usage on the survey. Some of the words may have been stated in a way that was difficult for the research participant to understand; hence, hindering the study findings. Using unfamiliar words or unclear instructions would be an example of this. Another aspect of language usage was that some words may have been vague or misleading, which could have impacted the responses of the participants. Another attribution could be the students understanding of the symptoms and the disorders. The use of a survey required the students to self-report experiencing the different areas within each diagnosis. Many of the students who participated in the study were not familiar with the DSM-IV criteria and diagnoses used within the survey; therefore, may not have been able to make accurate judgements or conclusions as to whether the situations really applied to them.

Another element considered as a limitation in research methodology is time. Time could be interpreted two ways: the time it took to administer the survey and the time that was allowed for the research participation. For example, the survey may have been considered by some of the participants as time-consuming; therefore, subjects may have lost interest and provided quick and simple answers rather than thorough ones. Also, class schedules limited the amount of time allocated for the administration; thus possibly hindering the results.

Validity is another aspect of the methodology used that was considered to be a limitation. For example, the instrument appeared to measure the intended goals of the research, but without specific validity standards in place, it was difficult to determine how valid the instrument was. The same notion can be applied to reliability as well.

Another limitation of the study was that there were only two universities that participated instead of three. This decreased the number of surveys administered, thus possibly impacting the intended results. Lastly, a limitation may be the truthfulness of the students. It appeared throughout the data that some students marked many if not all of the criteria in all of the diagnostic areas. It could be concluded from the appearance of those particular surveys that some students might not have taken the survey seriously, thus hindering the chance of accurate results.

CHAPTER FOUR

Results

Introduction

Chapter four will discuss the results of the data collected during this research project. The questionnaire that was distributed to college students in West Central Wisconsin will be analyzed. This chapter will begin with the general purpose of the research and will conclude with data analysis. The conclusions based on the results and the recommendations will be addressed in the next chapter.

Purpose of the study

The purpose of the research study is to determine what bearing ADD/ADHD has on adults while attending college and while at work. The sample consists of students at two universities in Wisconsin, during Fall Semester, 2000. In the Fall Semester, an anonymous survey was distributed to general education classes at each university. The survey addresses Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder as well as other disorders as classified within the DSM-IV (1994). Research on the impact that ADD/ADHD has on the lives of adults has been limited when compared to how much has been performed regarding its effect on children. Adults make up the majority of the workforce as well as occupy a large percentage of education. ADD/ADHD affects many adults; therefore, it is important to perform research in order to understand what impact ADD/ADHD has on them. The study is useful in understanding the effect that attention disorders has on college students. It also provides information regarding accommodations that have been utilized in vocational and educational environments.

Results

Nominal and descriptive methods were used in this study. The data describes the prevalence of ADD/ADHD in college students in West Central Wisconsin as well as a direct correlation of comorbidity. All of the statistics displayed by the tables are nominal in nature due to being broken down into categories.

Table 1 through Table 7 provides demographic information, which is derived from (a-e) on the survey (Appendix A). All of the questions within the demographics are broken down into sections corresponding to the number of participants and their percentage of contribution in regard to the topic indicated. Table 8 through 15 provides statistical information regarding the prevalence of ADD/ADHD in college students. The tables also provide data regarding comorbid disorders as identified through diagnostic criteria established within the DSM-IV (1994).

Table 1 identifies the number of participants and their gender. The population consisted of 248 individuals. All of the participants in the study are students at either the University of Wisconsin- Eau Claire or the University of Wisconsin- Stout. The largest category is females, totaling 81% of the population. Male subjects account for 19%. The total population combined equals 100%.

TABLE 1
Participants: 248

Gender	**Number of Participants**	**Percentage**
Male	47	**19%**
Female	201	**81%**
TOTALS	248	**100%**

The information provided within Table 2 identifies the variation of ages among the college students that were surveyed. The largest population is 17-20 year olds, who comprise 51.61% of the population. Approximately thirty percent are within the age range of 21-23. Students within the age range of 24-26 account for 7.66% of the population. The percentage of 2.02 identifies the age group of 27-30. Nine participants within the ages of 31-33 make up 3.63% of the population. Individuals within the ages of 34-36 are 1.61% of the total participants. The percentage of 1.61 identifies those students within the ages of 37-40. Anyone over the age of 40, accounts for 2.82% of the total students surveyed. All of the age groups combined total 100% of the students surveyed.

TABLE 2

Age Groups	**Number of Participants**	**Percentage**
17-20	128	**51.61%**
21-23	75	**30.24%**
24-26	19	**7.66%**
27-30	5	**2.02%**
31-33	9	**3.63%**
34-36	1	**0.41%**
37-40	4	**1.61%**
Other	7	**2.82%**
TOTAL	248	**100%**

The information identified within Table 3 is useful for viewing the distribution of race within the population. Out of the two universities that were surveyed, 234 of the students are Caucasian (94.35%). The percentage of African American students entail 0.4% and Native Americans comprise 1.21% of the population. There are no Asian

American students identified within the data. Hispanic students make up 0.81% of the research subjects. Finally, 3.32% of the population are of unknown race. The percentages combined equal 100% of the population.

TABLE 3

Race	**Number of Participants**	**Percentage**
African American	1	**0.4%**
Caucasian	234	**94.35%**
Native American	3	**1.21%**
Hispanic	2	**0.81%**
Asian American	0	**0%**
Other	8	**3.23%**
TOTAL	248	**100%**

Table 4 and Table 5 provide information regarding the college status of the subjects. The college classification of students who participated in this research project varied. Twenty-three (9.28%) of the individuals are classified as freshmen. The largest portion of students surveyed are sophomores, who make up 34.27% of the population. The majority of students are attending college on a full-time basis. They account for 236 (95.16%) of participants who filled out the survey. Fifty-six students (22.58%) are juniors and 47 students (18.95%) are seniors. There are 37 graduate students, which comprise 14.92% of the population. No other classifications are identified. The majority of the students surveyed are full-time consisting of 95.16% of the population. Twelve students (4.84%) are part-time students. Full-time and part-time students combined equal 100% of the population.

TABLE 4

Classification in College	Number of Participants	Percentage
Freshmen	23	**9.28%**
Sophomore	85	**34.27%**
Junior	56	**22.58%**
Senior	47	**18.95%**
Graduate	37	**14.92%**
Other	0	**0%**
TOTAL	248	**100%**

TABLE 5

Status in College	Number of Participants	Percentage
Full-Time Student	236	**95.16%**
Part-Time Student	12	**4.84%**
TOTAL	248	**100%**

Table 6 and Table 7 account for data regarding employment status. The majority of college students who participated in the study are employed. They comprise 74.2% of the population. Sixty-four students (25.8%) are unemployed. Employed and unemployed subjects combined equal 100% of the population. Most of the employed students work on a part-time status. They account for 89.13%. The remaining employed students work on a full-time basis comprising 25.8%. All of the working students combined total 100%.

TABLE 6

Employment Status	Number of Participants	Percentage
Employed	184	**74.2%**
Unemployed	64	**25.8%**
TOTAL	248	**100%**

TABLE 7

Employment Status	Number of Participants	Percentage
Full-Time	20	**10.87%**
Part-Time	164	**89.13%**
TOTAL	184	**100%**

Table 8 is a figure that provides information about students who reported having been formally diagnosed with ADD/ADHD, Depressive Disorder, Anxiety Disorder, Learning Disorder, or Traumatic Brain Injury. This information is derived from section (l) in the survey. According to the data collected, 59 students (24%) have been formally diagnosed with one or more of the disorders. The statistical data regarding the number of students with each diagnosis will be broken down more thoroughly later in this chapter. Seventy-six percent of the subjects have not been formally diagnosed with a disorder. The students with a formal diagnosis and those without comprise 100% of the total population.

TABLE 8

Students w/Diagnosis	**Number of Participants**	**Percentage**
With Formal Diagnosis	59	**24%**
Without Diagnosis	189	**76%**
TOTAL	248	**100%**

Tables 9-15 (sections f-k of the survey) focus on the various sections on the questionnaire that relate to the different disorders identified. The sections consist of DSM-IV criteria, which is broken down according to each disorder identified. The number of respondents with each diagnosis is identified. It also shows data regarding the criteria of each formal diagnosis and the correlation of criteria from other disorders according to positive responses within each DSM-IV category. Each table is broken down according to how the disorder being focused on is correlated with criteria for other disorders. For example, a student that marked themselves as having one formal diagnosis, may have also identified themselves as experiencing symptoms of other disorders, by

positively responding to the questions asked within the various areas on the questionnaire. Each of the tables that follow have been broken down into categories that focus on the number of positive responses within each diagnostic category, the average positive responses per person as derived from the number of questions within a given category, and the percentage of positive responses per DSM-IV category. Each of these areas is than compared to the other disorders in order to provide information regarding comorbidity.

Table 9 (sections f and g in the survey), focuses on students who have been formally diagnosed with Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder. Five students are identified as having been diagnosed with ADD/ADHD. Section (f) of the survey utilizes DSM-IV criteria specific to Attention Deficit Disorder. Section (g) of the survey identifies the components of Attention Disorder that are related to hyperactivity. Though ADD and ADHD are interchangeable, information regarding the DSM-IV criteria is provided for them separately in the tables to follow as well as combined. Of the five students who have been diagnosed with ADD/ADHD, 46.67% of the given responses are positively identified by criteria associated with Traumatic Brain Injury. The students related to 96% of the criteria for ADD and 60% of the criteria for ADHD. Both categories combined total 14 questions on the survey and have an average of 10.2 positive responses per person, equaling 72.86%. The five students average 57.14% positive responses in relation to Depression. There is an average of 4.6 positive responses out of 6 questions possible in the diagnostic category of Anxiety. Fifty-two

percent of the positive responses in the diagnostic category of LD are identified by respondents who have been diagnosed with ADD/ADHD.

TABLE 9

Number of Respondents with an ADD/ADHD Diagnosis: 5

Diagnosis	Number of Positive Responses	Average Positive Responses per Person	Number of Questions in Category	Percent of Positive Responses per DSM-IV Category
TBI	7	1.4	3	**46.67%**
ADD	24	4.8	5	**96%**
ADHD	27	5.4	9	**60%**
Combined	51	10.2	14	**72.86%**
Depression	20	4	7	**57.14%**
Anxiety	23	4.6	6	**76.67%**
LD	13	2.6	5	**52%**

*Totals are not provided due to mass variations within each table and subjects giving multiple answers.

Table 10 (section h in the survey) focuses on students who have been formally diagnosed with Depressive Disorder. Twenty-three students are identified as having been diagnosed with Depression. Section (h) of the survey utilizes DSM-IV criteria specific to this disorder. Of the twenty-three students who have been diagnosed with Depression, there is an average 2.09 positive responses in the diagnostic category of Depression out of 7 possible responses, thus equaling 29.86% of the positive responses. Thirty-two percent of the positive responses are identified by criteria associated with Traumatic Brain Injury. The students relate to 57.4% of the criteria for ADD and 34.33% of the criteria for ADHD. Both categories combined total 14 questions on the survey and had an average of 5.96 positive responses per person, equaling 42.57%. There is an average of 3.57 positive responses out of 6 questions possible in the diagnostic category of Anxiety

Finally, 21.8% of the positive responses in the diagnostic category of LD are identified by respondents who have been diagnosed with Depressive Disorder.

TABLE 10
Number of Respondents with a Depressive Disorder Diagnosis: 23

Diagnosis	Number of Positive Responses	Average Positive Responses per Person	Number of Questions in Category	Percent of Positive Responses per DSM-IV Category
TBI	22	0.96	3	**32%**
ADD	66	2.87	5	**57.4%**
ADHD	71	3.09	9	**34.33%**
Combined	137	5.96	14	**42.57%**
Depression	48	2.09	7	**29.86%**
Anxiety	82	3.57	6	**59.5%**
LD	25	1.09	5	**21.8%**

*Totals are not provided due to mass variations within each table and subjects giving multiple answers.

Table 11 (section i in the survey) focuses on students who have been formally diagnosed with Anxiety Disorder. Fourteen students are identified as having been diagnosed with Anxiety. Section (i) of the survey utilizes DSM-IV criteria specific to this disorder. Of the fourteen students who have been diagnosed with Anxiety Disorder, there is an average 4.14 positive responses in the diagnostic category of Anxiety out of 6 possible responses, thus equaling 69% positive responses. The percentage of positive responses identified by the criteria associated with Traumatic Brain Injury equals 33.33. The students relate to 55.8% of the criteria for ADD and 46% of the criteria for ADHD. Both categories combined total 14 questions on the survey and have an average of 6.93

positive responses per person, equaling 49.5%. The percentage of positive responses within the DSM-IV category of Depression is 34.71%. Lastly, 22.8% of the positive responses in the diagnostic category of LD are identified by respondents who have been diagnosed with Anxiety Disorder.

TABLE 11
Number of Respondents with an Anxiety Disorder Diagnosis: 14

Diagnosis	Number of Positive Responses	Average Positive Responses per Person	Number of Questions in Category	Percent of Positive Responses per DSM-IV Category
TBI	14	1	3	**33.33%**
ADD	39	2.79	5	**55.8%**
ADHD	58	4.4	9	**46%**
Combined	97	6.93	14	**49.5%**
Depression	34	2.43	7	**34.71%**
Anxiety	58	4.14	6	**69%**
LD	16	1.14	5	**22.8%**

*Totals are not provided due to mass variations within each table and subjects giving multiple answers.

Table 12 (section j in the survey) focuses on students who have been formally diagnosed with Learning Disorder (LD). Four students are identified as having been diagnosed with LD. Section (j) of the survey utilizes DSM-IV criteria specific to this disorder. Of the four students who have been diagnosed with Learning Disorder, there is an average 1.25 positive responses in the diagnostic category of LD out of 5 possible responses, thus equaling 25% positive responses per diagnostic category. The percentage of positive responses identified by the criteria associated with Traumatic Brain Injury equal 41.67. The students relate to 60% of the criteria for ADD and 36.11% of the criteria for ADHD. Both categories combined total 14 questions on the survey and have an

average of 6.25 positive responses per person, equaling 44.64%. The percentage of positive responses for Depression is 32.44. Finally, 33.33% of the positive responses in the diagnostic category of Anxiety were identified by respondents who have been diagnosed with Learning Disorder.

TABLE 12
Number of Respondents with a Learning Disorder (LD) Diagnosis: 4

Diagnosis	Number of Positive Responses	Average Positive Responses per Person	Number of Questions in Category	Percent of Positive Responses per DSM-IV Category
TBI	5	1.25	3	**41.67%**
ADD	12	3	5	**60%**
ADHD	13	3.25	9	**36.11%**
Combined	25	6.25	14	**44.64%**
Depression	9	2.25	7	**32.14%**
Anxiety	8	2	6	**33.33%**
LD	5	1.25	5	**25%**

*Totals are not provided due to mass variations within each table and subjects giving multiple answers.

Table 13 (section k in the survey) focuses on students who have been formally diagnosed with Traumatic Brain Injury (TBI). One student is identified as having been diagnosed with TBI. Section (k) of the survey utilizes DSM-IV criteria specific to this disorder. The one student who has been diagnosed with Traumatic Brain Injury averages 0 positive responses in the diagnostic category of TBI out of 3 possible responses, thus equaling 0% positive responses. The percentage of positive responses identified by the criteria associated with Learning Disorder also equals 0. The student relates to 20% of the criteria for ADD and 33.33% of the criteria for ADHD. Both categories combined total 14 questions on the survey and had an average of 4 positive responses per person, equaling 28.57%. The percentage of positive responses for Depression is 57.14. Finally,

16.67% of the positive responses in the diagnostic category of Anxiety are identified by respondent who has been diagnosed with Traumatic Brain Injury.

TABLE 13
Number of Respondents with a Traumatic Brain Injury (TBI) Diagnosis: 1

Diagnosis	Number of Positive Responses	Average Positive Responses per Person	Number of Questions in Category	Percent of Positive Responses per DSM-IV Category
TBI	0	0	3	**0%**
ADD	1	1	5	**20%**
ADHD	3	3	9	**33.33%**
Combined	4	4	14	**28.57%**
Depression	4	4	7	**57.14%**
Anxiety	1	1	6	**16.67%**
LD	0	0	5	**0%**

*Totals are not provided due to mass variations within each table and subjects giving multiple answers.

Table 14 addresses students who have been formally diagnosed with one or more of the disorders. Twelve students are identified as having multiple diagnoses. Of the twelve students, there is an average of 0.92 positive responses in the diagnostic category of TBI out of 3 possible responses, thus equaling 30.67% The percentage of positive responses identified by the criteria associated with Learning Disorder also equals 21.6. The students relate to 61.6% of the criteria for ADD and 35.22% of the criteria for ADHD. Both categories combined total 14 questions on the survey and have an average of 6.25 positive responses per person, equaling 44.64%. The percentage of positive responses for Depression is 31. Overwhelmingly, 73.67% of the positive responses in the

diagnostic category of Anxiety are identified by respondents who have been diagnosed with multiple disorders.

TABLE 14
Number of Respondents with Multiple Diagnoses: 12

Diagnosis	Number of Positive Responses	Average Positive Responses per Person	Number of Questions in Category	Percent of Positive Responses per DSM-IV Category
TBI	11	0.92	3	**30.67%**
ADD	37	3.08	5	**61.6%**
ADHD	38	3.17	9	**35.22%**
Combined	75	6.25	14	**44.64%**
Depression	26	2.17	7	**31%**
Anxiety	53	4.42	6	**73.67%**
LD	13	1.08	5	**21.6%**

*Totals are not provided due to mass variations within each table and subjects giving multiple answers.

Table 15 addresses students who have not been formally diagnosed with a disorder. One hundred and eighty-nine students are identified in this area. Of the one hundred and eighty-nine students, there is an average of 0.4 positive responses in the diagnostic category of TBI out of 3 possible responses, thus equaling 13.33% The percentage of positive responses identified by the criteria associated with Learning Disorder equals 11.2. The students relate to 37% of the criteria for ADD and 21% of the criteria for ADHD. Both categories combined total 14 questions on the survey and have an average of 3.74 positive responses per person, equaling 26.71%. The percentage of positive responses for Depression is 21.43. Twenty-five percent of the positive responses within the DSM-IV category of Anxiety Disorder are identified by respondents who have not been diagnosed with a disorder.

TABLE 15
Number of Respondents with No Diagnosis **189**

Diagnosis	Number of Positive Responses	Average Positive Responses per Person	Number of Questions in Category	Percent of Positive Responses per DSM-IV Category
TBI	75	0.4	3	13.33
ADD	349	1.85	5	37
ADHD	358	1.89	9	21
Combined	707	3.74	14	26.71
Depression	283	1.5	7	21.43
Anxiety	283	1.5	6	25
LD	186	0.56	5	11.2

*Totals are not provided due to mass variations within each table and subjects giving multiple answers.

There were two open-ended questions on the survey (sections m and n). The participants were asked to provide information regarding any accommodations that have been provided within academic or vocational environments The answers provided have been placed into groups and the results of these questions are as follows.

In regard to accommodations at school, 8 students noted that they have asked for extended time periods for testing, assignments, and papers. One student explained that they have had help with organizing papers and assignments. Two students utilized note takers while in class. A total of 4 students implied that they were allowed to take tests in silent or private rooms. One student noted that they were provided with a headset with music. One student has studied with a tutor. Finally, 2 students answered the question by stating that they were allowed to take an incomplete in their courses in order to complete projects.

The same question was asked in regard to what accommodations have been utilized within work environments. One student wrote that extra training was provided in order to help eliminate errors on-the-job. One student requested extra days off as needed from their employer. And one student has been allowed to have flexible start times.

CHAPTER FIVE

Conclusions

Introduction

Chapter five will address the research questions. It will provide conclusions based upon the results of the study, by focusing on the data analyzed and applying the information gathered. The prevalence of ADD/ADHD in college students will be discussed. Comorbidity and accommodations in educational and vocational environments will also be discussed. Finally, this chapter will conclude with recommendations made as a result of the research.

Discussion

The research consisted of college students in West Central Wisconsin. The two universities in which the survey were distributed was the University of Wisconsin Eau-Claire and the University of Wisconsin-Stout. There were a total of 298 participants in this study, with the majority of students being female. Many different age groups were represented within this study. Ages ranged from 17-51 years old. The majority of the subjects were Caucasian; however, African American Students, Native American Students, Hispanic Students, and others were involved in the research as well. Two hundred and thirty-six students were attending school full-time. The surveys were disbursed among college students of all classifications. The majority of participants were sophomores; however, freshmen, juniors, seniors, and graduate students were fairly represented. Finally, 184 of the students were employed, with 89.13% of them working on a part-time basis.

The bulk of the study focused on various criteria from the DSM-IV (1994). The different sections of the survey were broken down according to the criteria used to diagnose each disorder. The students were asked to write an (x) next to all of the situations that applied to them within academic and vocational environments. This method was used in order to determine whether there were overlapping symptoms of other disorders.

Fifty-nine (24%) of the students were identified as having been previously diagnosed with one of the disorders. That means that almost one-fourth of the population has had a formal DSM-IV diagnosis. Only five students within the population had been diagnosed with ADD/ADHD, which is less than 2% of the total population. Other disorders were Depression, in which 23 students (9.27%) have been diagnosed and Anxiety Disorder, where 14 students (5.64%) reported being diagnosed. Another disorder represented in the survey was Learning Disorder, which resulted in 4 (1.6%) subjects having a previous diagnosis. Only 1 person marked that they had a previous diagnosis of Traumatic Brain Injury, which is less than 1% of the total population. Finally, 12 (4.83%) of the students were identified as having multiple diagnoses.

What is significant about the data is that almost all of the students surveyed indicated that they experienced some of the criteria within most of the different areas. For example, those students who have been diagnosed with ADD/ADHD responded positively to the criteria used to diagnose Anxiety (76.67%) and Depression (57.14%). This means that they marked numerous experiences within those categories. Another

example is that students who have been diagnosed with Depression, marked that they experience symptoms associated with the diagnosis of Anxiety (59.5%), ADD (57.4), and TBI (32%). This also occurred within the data derived from students who had been diagnosed with Anxiety Disorder. There appears to be a correlation of symptoms with TBI (33.33%), ADD (55.8%), and Depression (34.71%). Sixty percent of the positive responses per the ADD category were marked by individuals who have been diagnosed with Learning Disorder. They also positively responded to 41.67% of the questions in the TBI category. The student who had been diagnosed with TBI positively responded to 57.14% of the criteria for Depressive Disorder and 33.33% for ADHD. And interestingly, the students that had not been diagnosed with a previous disorder also responded positively in quite a few areas. For example, the percent of positive responses in the area of ADD was 37 and Depression consumed 21.43%. Only eighteen accommodations in academic settings were identified within this research and three were identified within work environments.

Conclusions

The study addressed three specific questions. The first question was asked in order to identify whether or not ADD/ADHD was prevalent in college students in West Central Wisconsin. The results indicate that the percentage of college students with this disorder is relatively small. Less than 2% of the entire population reported having been diagnosed with the disorder. However, that information does conclude that ADD/ADHD exists within the adult population.

The second question referred to the presence of comorbid disorders. Based on the findings of this study, it is concluded that many of the criteria used for diagnosis of various disabilities overlap; therefore, enhancing the questions of whether or not other disorders are being overlooked upon diagnosis and whether overdiagnosis of certain disorders exists. It suggests that comorbidity exists. It should be noted that the students participating in this research did not have a proper medical background in order to make a proper diagnosis; therefore, the ability to accurately self-analyze may have been hindered. It should also be recognized that this survey was administered at the end of the semester; therefore, many of the symptoms experienced may have been due to temporary stress or tension from their environments. Another aspect that is important to mention is that some of the students may not have taken the survey seriously, thus hindering accurate results.

The last question that this research addressed was whether accommodations were utilized within educational and/or vocational environments. The percentage of response in regard to these questions was relatively small. However, the results that were derived from this study reflect the accommodations that were mentioned throughout the literature review.

Recommendations

This study produced results that indicate that comorbidity is predominant. Studies have been performed in the effort to identify whether disorders are being properly

diagnosed. It is important not only for the professional making the diagnosis to understand what other underlying symptoms of other disorder are present, but also for the individual to have accurate facts about how the disorder may affect them. More studies should be performed in the effort to identify how common these concerns are, so that appropriate diagnosis can be made.

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APPENDIX A

Dear College Students,

A large amount of research has been performed in the past regarding how Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder affects children, but little has been performed in regard to how it affects adults. The purpose of this study is to ascertain how attention disorders may affect college students in both educational and vocational environments.

***I understand that by filling out this questionnaire, I am giving informed consent as a participating volunteer in this study. I understand the basic nature of this research and I agree that this study does not present any medical or social risks. I am aware that the information provided will be collected in a manner so that **no identifiers are used; therefore, confidentiality is guaranteed**. I realize that I have the right to refuse to participate and that my right to withdraw from participation at any time during this study will be respected.

NOTE: Questions or concerns about participation in the research or subsequent complaints should be addressed first to the researcher or the research advisor and second to Dr. Ted Knous, Chair, UW-Stout Institutional Review Board for the Protection of Human Subjects in Research, 11 HH, UW-Stout, Menomonie, WI, 54751, phone (715) 232-1126.

Questionnaire

(Many of the criteria used in the questions on this survey are directly listed in the Diagnostic and Statistical Manual of Mental Disorders (4^{th} Edition).

Please write an (X) on the lines that apply to you. Use other instructions as provided.

(a) Sex: Male_____ Female_____

(b) Age: 17-20_____ 21-23_____ 24-26_____ 27-30_____ 31-33_____ 34-36_____ 37-40_____ Other_____ (Please Specify:_____)

(c) Race: African American_____ Caucasian_____ Native American_____ Hispanic_____ Asian American_____ Other_____

(c) Classification in College: Freshman_____ Sophomore_____ Junior_____ Senior_____ Graduate_____ Other_____ (Please Specify:_____)

(d) Are you currently a full-time_____ or a part-time_____ student?
If other, please specify_____

(e) Are you currently employed_____ or unemployed_____ ?
If employed, do you work full-time_____ or a part-time_____?

(f) Do you ever have any of the following: (Please write an (X) on the line next to all situations that apply)

1. _____ Difficulty paying attention to detail or make careless mistakes in schoolwork **or**
   _____ at your place of employment?
2. _____ Difficulty staying focused on a task or listening when spoken to?
3. _____ Difficulty following instructions or finishing schoolwork **or**
   _____ duties at the workplace?
4. _____ Easily distracted by various stimuli within school **or**
   _____ work environments?
5. _____ Forgetful in daily activities?

(g) Do you often experience any of the following: (Please write an (X) on the line next to all situations that apply)

1. _____ Fidgeting with your hands or feet or have difficulty remaining seated for long periods of time?
2. _____ Difficulty awaiting your turn?
3. _____ Interrupting or intruding on others (i.e. butt in to others conversations)?
4. _____ Leaving your seat while in classroom or other situations where remaining seated is expected?
5. _____ Feelings of restlessness?
6. _____ Difficulty while quietly engaging in leisure activities?
7. _____ "On the Go" or acts as if "Driven by a Motor"?
8. _____ Excessive talking?
9. _____ Blurting out answers before questions have been completed?

(h) Do you often experience any of the following: (Please write an (X) on the line next to all situations that apply)

1. _____ Inflated self-esteem or grandiosity?

2. _____ Decreased need for sleep (i.e. feel rested after only 3 hours of sleep)?

3. _____ Being More talkative than usual or feeling pressure to keep talking?
4. _____ Racing thoughts?
5. _____ Distractibility?
6. _____ Significant increase in goal-directed activity (either socially, at work or school, or sexually)?
7. _____ Excessive involvement in pleasurable activities that have a high potential for painful consequences (i.e. engaging in unrestrained shopping sprees, sexual indiscretions, or foolish business expenses)

(i) Do you often experience any of the following: (Please write an (X) on the line next to all situations that apply)

1. _____ Restlessness or feeling keyed up or on the edge?
2. _____ Being easily fatigued?
3. _____ Difficulty concentrating or your mind going blank?
4. _____ Irritability?
5. _____ Muscle tension?
6. _____ Sleep disturbance?

(j) Do you often experience any of the following: (Please write an (X) on the line next to all situations that apply)

1. _____ Difficulty expressing verbal and written language?
2. _____ Difficulty paying attention to detail?
3. _____ Difficulty recognizing objects?
4. _____ Difficulty planning, organizing, sequencing, or abstracting?
5. _____ Difficulty problem solving?

(k) Do you often experience any of the following: (Please place a (X) on all situations that apply)

1. _____ Short or long-term memory loss?
2. _____ Difficulty with speech and communication?

3. _____ Difficulty demonstrating appropriate behaviors?

(l) Have you ever been formally diagnosed or medically treated for any of the following: (Please write an (X) on the line next to all situations that apply)

1. _____ Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder?
2. _____ Depressive Disorder?
3. _____ Anxiety Disorder?
4. _____ Learning Disorder?
5. _____ Traumatic Brain Injury?

(m) While attending school, have you ever needed to ask for accommodations in regard to any of the questions asked above? (Please explain the accommodations that were provided for you during that time on the following lines) _____

_____

_____

_____

_____

_____

(n) While attending work, have you ever needed to ask for accommodations in regard to any of the questions asked above? (Please explain the accommodations that were provided for you during that time on the following lines) _____

_____

_____

_____

_____

_____

Thank you for participating in this research project. Your time and effort is greatly appreciated.

Sincerely,

Jennifer Burgess