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## Predicting Quality of Life of College Students Diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD)

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FLORIDA STATE UNIVERSITY

COLLEGE OF EDUCATION

PREDICTING QUALITY OF LIFE OF  
COLLEGE STUDENTS DIAGNOSED WITH  
ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD)

By

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I dedicate my dissertation work to my family and friends. I express a special feeling of gratitude to my loving parents, Don and Sue Sedam whose ongoing words of encouragement, guidance, love, and undying support helped keep me focused on this goal. My sisters Chrissy and Katie, have also been incredible motivators, especially when the light at the end of the tunnel still felt like an oncoming train. My kind and encouraging mother and father-in-law, Georgann and Jerry McBride, have been incredible with their support, love, and motivation as well.

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## ABSTRACT

While an ever-increasing amount of literature exists regarding various aspects of ADHD, the relationship of functional impairments to important life and social skills, as well as professional functionality remains relatively unexplored. The Barkley Functional impairment scale is a recently developed and untested scale, especially with respect to other constructs of college life. While the reported validity is promising for use of evaluating functional impairments in people with ADHD, the validity and utility of the scale should be evaluated in relation to similar constructs to determine overall benefit. By doing so, researchers and other professionals in the field of counseling, rehabilitation, and professional development can address the relationships, and can improve counseling and rehabilitation services people with ADHD. Therefore, a study encompassing the relationships among measures of self-perceived functional impairment, quality of life, college self-efficacy, and career decision state could prove beneficial in understanding how aspects of ADHD affect individuals throughout the college experience. The purpose of this study was to address and to evaluate the strength of these relationships. If the self-perceived functional impairment scores were deemed to be associated with quality of life and college self-efficacy, the use of the BFIS as a diagnostic and prescriptive tool could be supported to improve the effectiveness of counseling and rehabilitation services for college students with ADHD.

Four research questions guided this study. The first question stated, “Is the self-perceived functional impairment related to quality of life?” The second question stated, “Is the self-perceived functional impairment associated with college self-efficacy?” The third question stated, “What is the relationship between perceived level of functional impairment and career decision state as measured by indecision and satisfaction with choice?” The fourth question

stated, “What is the relationship between perceived level of functional impairment, college self-efficacy, and career decision state with respect to self-perceived quality of life in students diagnosed with ADHD?” The hypothesis for the first question was, “There is an inverse correlation between self-perceived functional impairment and quality of life in students diagnosed with ADHD.” The hypothesis for the second question was, “There is an inverse correlation between self-perceived functional impairment and college self-efficacy in students diagnosed with ADHD.” The third question had two hypotheses. The first hypothesis for question three was “There is a positive correlation between level of indecision and perceived level of functional impairment.” The second hypothesis for question three was, “There is a positive correlation between degree of dissatisfaction with career choice and perceived level of functional impairment.” The hypothesis for the fourth question was, “Functional impairment, college self-efficacy, and career decision state all will capture significant independent variation in the prediction of quality of life in students diagnosed with ADHD.” The first, second, and third hypotheses were tested using Pearson Product-Moment correlations. The fourth hypothesis was tested by using linear multiple regression.

Data were collected from 150 of 1108 students registered with the Students with Disabilities Resource Center (SDRC) at Florida State University through an email questionnaire. Two emails were sent approximately two weeks apart to obtain participants. Volunteer participants were potentially compensated by having their anonymous identification number submitted to a raffle drawing to receive one of three prizes: a \$150 gift card, a \$75 gift card, and a \$50 gift card. A web-based survey program was utilized, consisting of a background/demographics questionnaire and the Occupational Alternatives Questionnaire (OAQ), the Barkley Functional Impairment Scale-Long Form (BFIS-LF), the World Health

Organization Quality of Life-Brief Version (WHOQOL-BREF), and the College Self-Efficacy Inventory (CSEI). This instrument was approved by the Florida State Institutional Review Board (IRB) prior to utilization with participants. Only complete surveys were used in the calculation of results.

Results of the study showed the first hypothesis was accepted that quality of life is moderately and inversely associated with perceived level of functional impairment. The second hypothesis also was accepted. College self-efficacy was inversely, but weakly associated with perceived level of functional impairment. The first part of the third hypothesis was rejected that the level of indecision with career choice was related to perceived level of functional impairment. The second part of this hypothesis was accepted that dissatisfaction with career choices was weakly correlated with perceived level of functional impairment. The fourth hypothesis was confirmed that perceived functional impairment, self-efficacy, and level of dissatisfaction with career choice significantly contributed to the quality of life of students diagnosed with ADHD. Levels of functional impairment and dissatisfaction were inversely correlated with quality of life in the prediction model.

The information gathered yields beneficial information about the use of the BFIS in disability and rehabilitation counseling centers as a tool for addressing perceived functional impairments and related constructs of students diagnosed with ADHD. The correlations found among self-perceived functional impairment, college self-efficacy, the dissatisfaction portion of career decision state, and quality of life of people with ADHD could significantly benefit the manner in which services are provided to people utilizing various disability services on college campuses. Based on these results, the utility of the BFIS was supported as a prescriptive tool and as an instrument for counselors to use to address the relationship between self-perceived

functional impairment, college self-efficacy, dissatisfaction with career choice concerns, and quality of life in college students diagnosed with ADHD.

# CHAPTER 1

## INTRODUCTION

### Statement of the Problem

The broad social problem addressed in this study is the need to help persons with ADHD become more productive, well-adjusted citizens (Barkley, 2011; Nigg, et. al, 2005; Pliszka, 2005; Young & Toone, 2000). The terms “ADHD” and “ADD” have become commonly used in conversation about those who cannot complete tasks, who are easily distracted, or who lack organizational skills in the workplace. (Goldstein & Ellison, 2002; Murphy, Barkley, & Bush, 2002). Since the focus of the BFIS is on the functional impairments of the individual, these additional facets of life can be addressed more thoroughly and with potentially greater impact on the needs of individuals within this population.

Until the development of the Barkley Functional Impairment Scale (BFIS), assessments evaluating people with Attention-Deficit/Hyperactivity Disorder (ADHD) have focused on the presence of symptoms of a disability, rather than on functional impairments (Barkley, 2011). Because of this method of measurement, major facets of life have not been able to be evaluated with regard to how they are related to functionality, such as self-perceived quality of life and college adjustment. By evaluating the utility of the BFIS as a measure of self-perceived functional impairment, as well as its relationship to college adjustment and quality of life of students diagnosed with ADHD, its use for counselors in disability service centers could prove very beneficial for assisting these individuals adjust and function more optimally in academic settings and in life. (Barkley, 2011; Barkley et al., 2008; Solanto, et al., 2008).

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

Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental condition that is characteristically identified by impulsivity, inattentive behavior, and hyperactivity that begins in childhood. For many people, these symptoms continue through adolescence and adulthood (American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders, 2000; Barkley 1997; Barkley, 2006; Barkley, Murphy, & Fischer, 2008; Hervey, Epstein, & Curry, 2004; McGough & McCracken, 2006; Rostain & Ramsay, 2006; Weisler, 2004; Young & Toone, 2000). Common traits of this diagnosis are academic performance difficulties; social and relationship troubles; and challenges in obtaining, maintaining, and advancing in the vocational realm (Barkley, 2006; Barkley et al., 2008; Carr, Nigg, & Henderson, 2006; Hervey et al., 2004; Weisler, 2004). According to recent research regarding people with ADHD, adults with this diagnosis often present with executive functioning deficits. They also may feel and express emotions more openly and strongly than people without ADHD (Barkley, 1997a; Barkley, 1997b; Braaten & Rosen, 2000; Burd et al., 2006; Faraone, et al., 2000; Hervey et al., 2004; Hesslinger et al., 2002; Kitchens, Rosen, & Braaten, 1999; Pliszka, 2005; Rapport, Friedman, Tzelepis, & Van Voorhis, 2002; Weisler, 2004).

### **Prevalence Rates, Etiology, and Genetic Characteristics**

The diagnosis of ADHD is relatively common, and has an overall prevalence rate (including hyperactive/impulsive type, inattentive type, and combined type) averaging approximately 7.4% of the population of children and adolescents in the United States, according to a study of nearly 6,000 individuals using criteria from the DSM-IV (Barbarese et al., 2002). The prevalence rate in adults, however, is reportedly somewhat lower, at approximately 4% to 5% of the population (Barkley, 2006; Carr, Nigg, & Henderson, 2006; Faraone et al., 2000;



Goldstein & Ellison, 2002; Kessler et al., 2005; Kooij, et al., 2008; McGough & McCracken, 2006; Murphy & Barkley, 1996; Murphy & Gordan, 2006; Nadeau, et al., 1999). Although the estimate of prevalence rate is shown to be lower in adults than in children and adolescents, results of these findings point out that many symptoms people with ADHD do not decrease as one ages, as was once believed (Barkley, 2006; McGough & McCracken, 2006; Rostain & Ramsay, 2006). This prevalence rate reportedly is likely underestimated of the adults who have this frequently overlooked disability, as some adults have been able to develop coping mechanisms that mask or assist in compensating for some of the more noticeable characteristics of ADHD (Barkley, 2006; Kesler, et al., 2005; Kooij, et al., 2008; McGough & McCracken, 2006; Murphy, 2006; Murphy, Barkley, & Bush, 2002; Weisler, 2001).

Genetic predisposition and hereditary characteristics have also been found to be factors in ADHD prevalence (Barkley, 2006; Cornish et al., 2005; McGough & McCracken, 2006; Murphy, 2006; Murphy, Barkley, & Bush, 2002; Reiff & Tippins, 2004; Tsal, Shaley, & Mevorach, 2005; Weisler, 2004), with a several studies showing much higher prevalence rates of ADHD within families compared to the overall population in the United States (Barkley, 2006).

### **Characteristics of ADHD**

A wide array of characteristics, symptoms, and behavioral traits commonly are associated with the diagnosis of ADHD. Barkley (2006) reports a major area of life associated with dysfunction is behavioral inhibition. Deficits in self-regulation and executive functioning are also significant factors which are prevalent social and behavioral concerns closely associated with ADHD diagnoses (Barkley, 1997a; Barkley, 1997b; Barkley, 2011; Beidennan, et al., 2005; Goldstein & Ellison, 2002). People with the diagnosis of ADHD also tend to experience challenges in emotional regulation, which also contributes to the social skills deficits often

associated with the disorder (Braaten & Rosen, 2000; Friedman et al., 2003; Rapport et al., 2002).

Attentional dysfunction is a very common symptom for people with this diagnosis, and is a frequently addressed cognitive component associated with ADHD. Several studies address these aspects of attention with relation to ADHD as a way to better define various domains of behavioral concerns and how they are related to various types of attentional processes (Barkley, 2006; Biederman, et al., 2006; Hood, Baird, Rankin, & Isaacs, 2005; Tsal, Shaley, & Mevorach, 2005). However, reports from some studies also indicate a predominance of neuropsychological functioning areas that reportedly are less efficient in adults with a diagnosis of ADHD than to a population of those without the diagnosis (Barkley, 2006; Biederman et al., 2006).

A distinction of the functional impairment assessments compared to other assessments is that, instead of focusing on the presence of symptoms of a disability, assessments such as the BFIS allow clinicians to focus on functional impairments. That is, dysfunction in one's social and occupational components of life, or how one's many aspects of life are affected by the impairment. While self-report rating scales which assess quality of life and scales rating level of impairment; such as social relationships, recreation, family life, and work can overlap (Frisch, Cornell, Villaneuva, and Retzlaff, 1992 as an example), past scales do not assess the degree of functional ineffectiveness and harm being self-reported in these facets of life. These impairments are not evaluated, and only the extent of happiness, well-being, or satisfaction with these domains of life are evaluated. As an example, even though a score may be low on the domains of satisfaction or happiness, no correlation can be made as to whether the individuals perceive themselves as functioning ineffectively, having a disability, or being impaired. A functional impairment assessment allows the investigator to evaluate these important domains.

## **The Barkley Functional Impairment Scale (BFIS)**

The Barkley Functional Impairment Scale (BFIS) was developed by Dr. Russell Barkley as a quick means to evaluate or screen adults presented to his ADHD clinics for risk of psychosocial impairment secondary to ADHD, to measure self-rated psychosocial impairment as part of research grants on the nature of comorbidity and impairment associated with ADHD (Barkely et al., 2008), and to evaluate self-rated psychosocial impairment in children with ADHD followed into adulthood. The BFIS can be used with a population of adults throughout their usual life expectancy (ages 18-89 years). The BFIS can be administered via self-report in both a long and short form (15 domains and 6 domains respectively), has acceptable reliability and validity, is cost effective, is relatively easy to use and score, and reportedly is able to yield valuable information on the potential risks that such impairments may pose. Barkley also reports the BFIS can be used in various settings, such as “clinical work, research, industrial/organizational settings, or any other venues where the evaluation of potential deficits in daily life activities is of interest.” (Barkley, 2011).

With regard to rehabilitation counseling, this method of evaluation could prove valuable as a means to address concerns related to quality of life, academic adjustment in college life, and career decision state for people with disabilities. Additionally, if scores obtained from the BFIS show utility, its use could transform the manner in which services are provided through counseling and disability services programs at colleges and universities across the country.

### **Purpose of the Current Study**

People with the diagnosis of ADHD tend to exhibit executive function deficits which are prevalent in many aspects of their lives. Many of these individuals present with poor tolerance for frustration, difficulty with organization skills, ease and frequency of distractibility, limited

planning abilities, poor judgment, frequent inhibition and impulsivity, and challenges in emotional expression. Some of these individuals can also exhibit irrational aggression (Barkley, 2006; Braaten & Rosen, 2000; Gaub & Carlson, 1997; Goldstein & Ellison, 2002; Hinshaw & Melnick, 1995; Kitchens, Rosen, & Braaten, 1999; McGough & McCracken, 2006; Melnick & Hinshaw, 2000; Rostain & Ramsay, 2006; Walcott & Landau, 2004). Many studies of the characteristics and needs of people with ADHD have been designed with children and adolescents as the focus of the study, though this disorder has been shown to affect adults, as well. If various functional concerns, such as college self-efficacy, executive/vocational functioning skills and occupational concerns, and self-perceived quality of life, could be better evaluated and clarified within the post-adolescent population, then improved tailoring of treatments to assist with specific features of ADHD may be possible (McGough & McCracken, 2006; Nigg et al., 2004; Nigg et al., 2005). The Barkley Functional Impairment Scale (BFIS) has been purported to evaluate functional impairment concerns in adults. The purpose of the study was to investigate the utility of self-perceived functional impairment scores found in the Barkley Functional Impairment Scale (BFIS) as a measure of personal and social adjustment of post-adolescents diagnosed with Attention-Deficit/Hyperactivity Disorder and how it is related to quality of life, college self-efficacy, and career indecision and dissatisfaction. If this construct is associated with these other measures, the use of the BFIS as a diagnostic and prescriptive tool will be supported to improve the effectiveness of psychological counseling services.

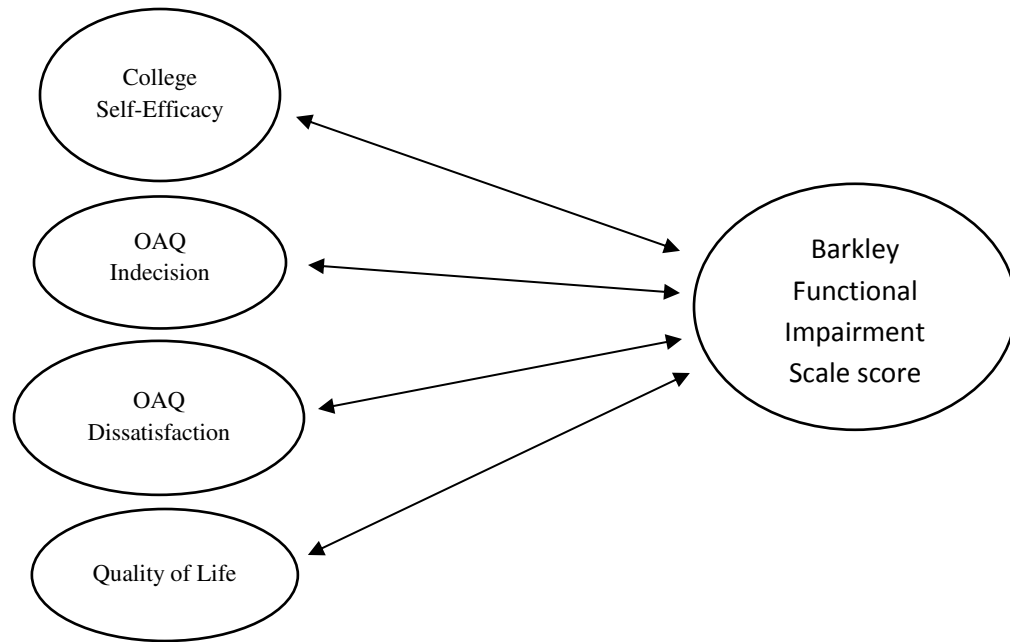
### **Research Questions and Hypotheses**

Four important questions were asked with relation to this study. Hypotheses to these questions are italicized. Visual interpretations of these hypotheses are shown below in figures 1 and 2.

- Is self-perceived functional impairment related to quality of life? *There is an inverse correlation between self-perceived functional impairment and quality of life in students diagnosed with ADHD.*
- Is self-perceived functional impairment associated with college self-efficacy? *There is an inverse correlation between self-perceived functional impairment and college self-efficacy in students diagnosed with ADHD.*
- What is the relationship between perceived level of functional impairment and career decision state as measured by indecision and satisfaction with choice? *There is a positive correlation between level of indecision and perceived level of functional impairment. There is a positive correlation between degree of dissatisfaction with career choice and perceived level of functional impairment.*
- What is the relationship between perceived level of functional impairment, college self-efficacy, and career decision state with respect to self-perceived quality of life in students with ADHD? *Functional impairment, college self-efficacy, and career decision state all will capture significant independent variation in the prediction of quality of life in students diagnosed with ADHD.*

### **Delimitations**

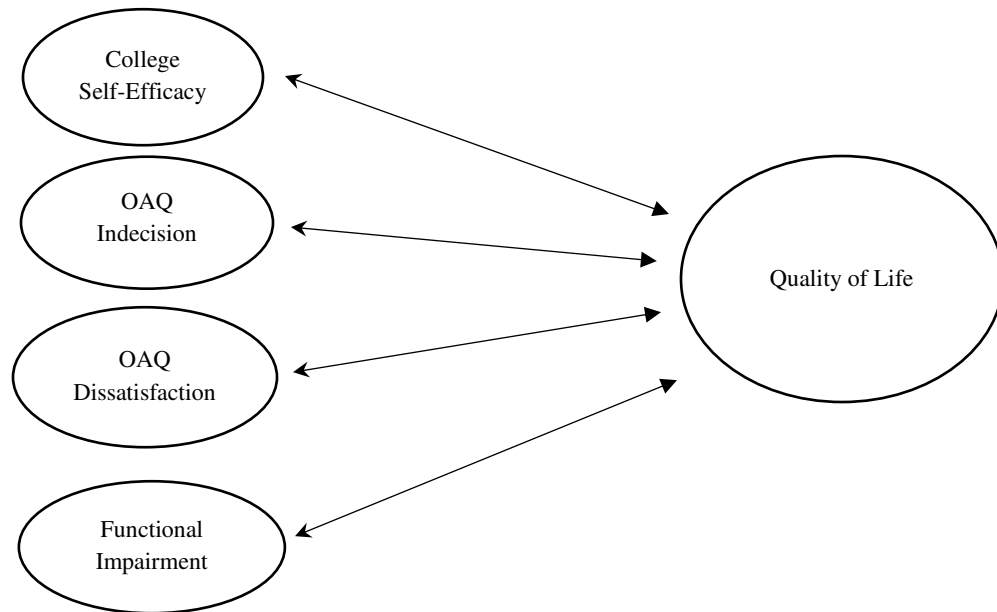
There are a few delimitations which could have affected the outcome of this study. The first delimitation is that the sample was geographically limited. The sample was obtained from a university in northern Florida. The university utilized was Florida State University. This university is predominantly comprised of students from the southeastern United States, and may not reflect the total population of the country. Additionally, participants must be registered in the



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**FIGURE 1: Visual Interpretation of Hypotheses 1-3:**

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**FIGURE 2: Visual Interpretation of Hypothesis 4:**

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students with disabilities resource center with a primary diagnosis of ADHD. Another potential delimitation is found in instruments used to measure the constructs in the study (BFIS-LF, WHOQOL-Bref, CSEI, and OAQ).

### **Definitions**

The term *utility* is defined as “a measure of how satisfying, rewarding, and pleasurable consuming or experiencing a particular thing is. A main tenet of the doctrine of Utilitarianism, utility is not only the happiness derived from an object itself but how useful, satisfying, and beneficial something is. This is a common concept in economics where utility can be empirically measured by comparing how much people are willing to pay for different things.” (“Utility”, 2015)

The term *functional impairment* is defined as “difficulties that substantially interfere with or limit role functioning in one or more major life activities including the following: basic daily living skills (e.g., eating, bathing, dressing); instrumental living skills (e.g., maintaining a household, managing money, getting around the community, taking prescribed medication); and functioning in social, family, and vocational/educational contexts.” (Federal Register, 1993)

The World Health Organization (1997), defines *Quality of life*, as an “individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person’s physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment.”

*Career decision state* is defined as a combination of two elements: the degree of uncertainty or indecision regarding the choice of career of the individual, and the magnitude of

dissatisfaction with that choice. It is considered an ongoing state of mind and consciousness about one's career, and is dynamic throughout the lifespan. (Bullock-Yowell, Peterson, Reardon, Leierer, & Reed, 2011)

Sax et al. (2000) define *academic adjustment* as successfully understanding the expectations of professors with regard to academics, developing study skills that are effective for the individual, adjusting to the academic workloads associated with college, and not feeling intimidated by professors. That is, academic adjustment is the perception of students regarding their comfort level of academic achievement and abilities and how it relates to their performance. Aspects of academic adjustment, as evaluated in this study, include the personal designation of cumulative grade point average, the name and level of satisfaction of the current major of each participant, and reported satisfaction with academic achievement thus far. Academic adjustment will be measured using a college self-efficacy scale.

The term *self-efficacy* is defined as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986, p. 391). Findings in other areas of research have suggested self-efficacy is a fundamental factor in personal adjustment and overall wellness of students, not just for social adjustment and academic purposes (DeWitz & Walsh, 2002; Gore, 2006; Solberg & Villareal, 1998). Self-efficacy is based in social-cognitive theory (Bandura, 1986), and is connected to several other psychological and educational constructs. It is related to motivational constructs like goals/goal setting and persistence (Schunk & Ertmer, 1999), the utilization of strategies such as self-regulated learning (Pintrich & DeGroot, 1990), actual achievement (Pajares & Miller, 1995), and affective concepts like anxiety, stress, and distress (Finney & Schraw, 2003; Solberg & Villareal, 1998). People with more self-efficacy have a tendency to be more motivated, to utilize more



strategies, to have higher achievement, and to cope better with stress and anxiety. Therefore, knowledge of self-efficacy is important for the purposes of this study.

The term *impairment*, as defined by the American Medical Association (2008), is “a significant deviation, loss, or loss of use of any body structure or function in an individual with a health condition, disorder or disease.” This definition and ensuing guidelines are frequently used in determining workers’ compensation cases. From the DSM-IV-TR (American Psychological Association, 2000), the phrase “... causes clinically significant distress or impairment in social, occupational, or other areas of functioning” (p. 8) does not specifically define the word “impairment.” However, when the phrase is attached to diagnostic criteria for many disorders of mental health, “impairment” is inferred to be diminished functioning in important psychosocial domains associated with human life. An impairment, therefore, refers to the consequences that arise from the presentation of the disorder and the related symptoms.

The term *symptoms* is defined as “any sensation or change in bodily function that is experienced by a patient and is associated with a particular disease” (Barkley, 2011). Using additional definitions, Barkley (2011) created a combined definition of *symptoms* as “a physical, cognitive, or behavioral manifestation of a disorder” (p. 4), and the term “*disorder*” is defined as “dysfunctions in physical or psychological (mental) adaptations that result in harm” (p. 5).

### **Assumptions of This Study**

Four main assumptions exist with regard to this study. The first assumption is that the nature of the disability, (ADHD), did not interfere with the completion of this task. As noted in the literature, indicators of ADHD include short attention span, lack of ability to maintain focus and complete tasks in a timely manner, difficulty following instructions, and ease of distraction by external stimuli.

The second assumption of this study is that the participants answered the instrument questions honestly and forthrightly. As research suggests, many people with disabilities try to “fit in” to everyday society by hiding or disguising physical and psychiatric disabilities, and by also hiding related feelings or emotions. In doing so, participants may have answered questions as to how they think those without ADHD may respond.

The third assumption of this study is that the participants could negotiate a web-based survey. Although the questionnaires appear basic and easy to follow to those who have experience in working with online assessment tools, those without experience in computer use or online use may have become confused.

The fourth assumption is that the diagnosis of ADHD is valid, there were no malingering concerns related to the diagnosis, and that the participant is experiencing the academic challenges, functional impairments, quality of life concerns, and career indecision which frequently accompany a diagnosis of ADHD.

### **Significance of This Study**

The outcome of this study provides information about the use of the BFIS in disability service counseling programs as a means of measuring self-perceived functional impairment for students diagnosed with ADHD. It specifies caveats for usage as well as potential uses in practice.

The BFIS changes focus of assessment tools used to measure levels of functioning and impairment. A unique distinction of the BFIS compared to other assessments is that, rather than focusing on the presence of symptoms of a disability, the BFIS allows clinicians to focus on the functional impairments. That is, dysfunction in social and occupational components of life, or how one’s multiple facets of life are affected by the impairment.

In the field of rehabilitation counseling, emphasis is placed on vocational, psychological and emotional integration and satisfaction after the acquisition of a disability. Additionally, quality of life and self-efficacy play an integral role in vocational rehabilitation. By addressing how various aspects of self-perceived functional impairment relate to quality of life and self-efficacy, vocational rehabilitation counselors can better assess, evaluate, and assist people with disabilities in acquiring more meaningful work and increased satisfaction in their vocational lives as well.

## CHAPTER 2

### REVIEW OF THE LITERATURE

The intent of this chapter is to provide a wide-ranging review of available and current literature pertinent to the variables selected for this study. Since the purpose of the study was to investigate the utility of self-perceived functional impairment scores found in the Barkley Functional Impairment Scale (BFIS) as a measure of personal and social adjustment of post-adolescents diagnosed with Attention-Deficit/Hyperactivity Disorder and how it is correlated to quality of life, college self-efficacy, and career indecision and dissatisfaction, a review of the many facets of ADHD, quality of life, development of the functional impairment scale and quality of life assessments used in the study, and career decision state inventory are included in this chapter.

#### **Overview of Attention-Deficit Hyperactivity Disorder (ADHD)**

Attention-Deficit/Hyperactivity Disorder (ADHD) is a neurodevelopmental condition which begins in childhood, can continue through adolescence, and into adulthood (APA, 2000; Barkley, 2006; Hervey, et al., 2004; McGough & McCracken, 2006; Reiff & Tippins, 2004; Rostain & Ramsay, 2006; Weisler, 2004). It has been reported to be a very easily inherited disorder which likely results from both the environment and genetic susceptibility (Cornish, et al., 2005; McCough & McCracken, 2006). Investigators have found both structural and functional deficits in the brains of people with ADHD, and have also discovered that medications used to treat these impairments in children are considered effective throughout the lifespan of the individual (McGough & McCracken, 2006).

The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition Text Revision (DSM-IV-TR) states “the essential feature of Attention-Deficit/Hyperactivity Disorder is a

persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequent and severe than is typically observed in individuals at a comparable level of development” (APA, 2000, p. 85). In order to warrant a diagnosis of ADHD, some symptoms must have been present prior to seven years of age in at least two situations. Also, interference with developmentally expected educational, occupational, or social functioning that is not potentially a symptom of another mental disorder must be present.

Although widely diagnosed, and becoming more prevalent annually, a number of concerns have pointed out with regard to the current diagnostic method in the DSM-IV-TR, and how people receive their diagnoses (APA, 2000; Barkley, 2006). One of these concerns is that all the field trials for ADHD were conducted solely on a population of children. Therefore, generalizability of symptom expression to the adult population cannot adequately be made (McGough & McCracken, 2006; Reiff & Tippins, 2004). An assessment tool for vocational, family, and social situations to obtain a broader conceptualization of possible impairments than what is currently provided could help determine various presentations of symptoms in the adult population (Barkley, 2011; Young & Toone, 2000). Assumptions that DSM-IV-TR criteria are appropriate for adults cannot be made, nor can the assumption that adults who do not meet current diagnostic conditions do not have a clinical or functional impairment. Many adults who experience such impairments in their daily lives may not be given appropriate treatment or services because of problems with the diagnostic symptoms criteria in the DSM-IV-TR (Barkley, 2011; McGough & McCracken, 2006). Establishing the existence of these functional impairments in major adult activities is also used by several entities, such as the American’s with Disabilities Act, workers’ compensation agencies, and Social Security Administration to

determine eligibility for services and/or compensations (American Medical Association, 2008; Barkley, 2011; Social Security Administration, 2008).

A possible explanation for the lack of development of different criteria for ADHD in adults is the reported amount of time and money necessary to conduct longitudinal research on the subject. Although research is starting to be conducted, the trend of cross-sectional research could have led to the current scarceness of data for this population segment (Barkley, Murphy, & Fischer, 2008; Kooij, et. al, 2008; Murphy & Gordon, 2006).

### **Historical Development of ADHD**

The symptoms predominantly associated with a diagnosis of ADHD traditionally have been characterized in numerous ways and are often present in the diagnostic context of several other clinical disorders (Barkley, 2006; McGough & McCracken, 2006; Pliszka, et al., 1999). According to Barkley (2006), the history of ADHD can be traced back to at least the 1800s, when many doctors described symptoms of hyperactivity and other similar difficulties in emotional/behavioral inhibition and sustained attention in their child and adolescent patients. Some scientists noticed these symptoms were similar to certain behaviors of individuals who had sustained brain injuries, and then conceptualized ADHD as a condition they called Minimal Brain Dysfunction (MBD) (Barkley, 2006; Reiff & Tippins, 2004; Weisler, 2004). They used stimulant to treat these symptoms medicinally, even while the conceptualization of the disorder underwent modifications. During this time, the diagnostic criteria for what is now called ADHD become more specified and differentiated from other diagnoses, such as Tourette's Syndrome (Barkley, 2006; Kitchens, Rosen, & Braaten, 1999; Pliszka, et al., 1999; Reiff & Tippins, 2004). Research also has been conducted in the field of neuropsychology that has yielded evidence of deficits in neurotransmitters in the frontal lobes of the brain, as well as deficiencies in the

expected levels of dopamine and norepinephrine in people diagnosed with ADHD (Barkley, 2006; McGough & McCracken, 2006; Welsh & Pennington, 1988). Additionally, a genetic component of ADHD has been supported by an increasing amount of literature (Barkley, 2006, Carr, Nigg, & Hendersson, 2006; Cornish, et al., 2005, McGough & McCracken, 2006, Reiff & Tippins, 2004; Stevenson, 1994; Weisler, 2004).

Although most people with a diagnosis of ADHD often exhibit symptoms of both hyperactivity/impulsivity and inattention, some tend to present one predominant trait. Based on behaviors over a six-month timeframe, a diagnosis of ADHD/I, (predominantly inattentive type), ADHD/II, (predominantly hyperactive-impulsive type), ADHD/III, (combined type), or not otherwise specified is made (APA, 2000). Males most frequently exhibit predominantly hyperactive/impulsive type ADHD, whereas females most frequently exhibit predominantly inattentive type ADHD (Nadeau, Littman, & Quinn, 1999).

### **Prevalence of ADHD**

Depending on the setting, the prevalence of ADHD is common males than in females by ratios fluctuating from 4:1 to 9:1. Prevalence rates are estimated at 3%-5% in school-age children (APA, 2000; Faraone et al., 2000; Kessler et al., 2005; McGough & McCracken, 2006; Murphy & Barkley, 1996; Murphy & Gordon, 2006; Reiff & Tippins, 2004). Symptoms in as many as 80% of children with the diagnosis of ADHD reportedly persist into adulthood (Murphy & Gordon, 2006; Safren, et al., 2010). Due to the fact that the DSM-IV-TR criteria for diagnosing ADHD were based on prevalent symptoms in children, these criteria do not necessarily reflect symptoms in adulthood. Therefore, prevalence rates for adults may appear lower than children (Murphy & Gordon, 2006; Safren, et al., 2010). Many symptoms from childhood may be masked or modified by adults due to attempted coping skills, though they may

continue to cause significant impairment in daily life (Kitchens, et. al, 1999; Murphy & Gordon, 2006; Rostain & Ramsay, 2006; Safren, et al., 2005, Safren, et al., 2010). That is, fewer psychomotor symptoms may be exhibited in older children and adults than in younger children. Instead, adults may demonstrate more cognitive symptoms of ADHD, like disorganization, poor planning skills, and difficulties in self-regulation (Murphy & Gordon, 2006). Also, due to learned outcomes and conditioning from past experiences with difficulties from related to ADHD, feelings of inadequate self-efficacy, avoidance, significant procrastination, and self-doubt can become more prevalent in adults (Ramsay & Rostain, 2004, Safren, et al., 2005).

Research indicates a significant gender disparity among those diagnosed with ADHD, with males being diagnosed at a rate of up to 9:1, depending on the setting (APA, 2000; Barkley, 2006; McGough & McCracken, 2006; Melnick & Hinshaw, 2000; Murphy & Barkley, 1996; Murphy & Gordon, 2006; Reiff & Tippins, 2004). These studies show a bias in referral reasons due to prevalent symptoms. As noted earlier, since males are more commonly diagnosed with hyperactive/impulsive type ADHD, the outwardly aggressive and psychomotor symptoms are more socially challenging, especially in the classroom, than the inattentive type symptoms more frequently seen in their female peers (Barkley, 2006; Gaub & Carlson, 1997; Nadeau, et al., 1999). Barkley (2006) reports, when properly diagnosed, however, males and females tend to exhibit their individual symptoms at the same levels of prevalence. That is, even though the males exhibit more outwardly and externalizing physical attributes of ADHD symptoms, the level of inattention and functional impairment is very similar (Barkley, 2006, Nadeau, et al., 1999). Additionally, studies indicate many of these differences were dependent upon the venue of the population being evaluated. Clinical testing environments, as opposed to community



samples, yielded far smaller variances between male and female participants (Barkley, 2006; Gaub & Carlson, 1997; Kooij, et. al, 2008; Nadeau, et al, 1999).

Due to the original assumption that a higher prevalence rate of males diagnosed with ADHD than females diagnosed with ADHD, a gender disparity also exists in research of the condition (Barkley, 2006; Biederman, et al., 2005; Nadeau, et al., 1999). Many studies have utilize only male participants, and therefore cannot be generalized to the overall population (Biederman, et al., 2005). Because of these studies, gender disparity reports could be significantly skewed because of confounding variables inherent in these studies as well as potential gender bias from those who refer potential participants to treatment or research facilities (Barkley, 2006; Biederman, et al., 2005). Biederman and colleagues (2005) also report the area where the gender differences are most noticeable was in the much larger number of male children referred for treatment due to the externalizing and disruptive behaviors commonly associated with ADHD-Hyperactive/impulsive and ADHD-Combined types. These children are frequently referred by teachers, parents, and other caregivers. As people get older, the ratio between male and female referrals gets much smaller, as many of these adults self-refer for services (Biederman, et al., 2005).

National prevalence rates of ADHD by race/ethnicity is controversial, at best (Barkley, 2006; Ramtekkar, Reirsen, Todorov, & Todd, 2010). Cultural differences and traits, availability of healthcare, social stigma, and willingness to seek treatment lead to inaccurate estimates by race/ethnicity and gender. Several past studies based on population of people with ADHD have depended on diagnoses by a single reporter or by historical clinical diagnoses (Barbarese et al., 2002; Burd, Klug, Coumbe, & Kerbeshian, 2003; Mandell, Thompson, Weintraub, Destefano, & Blank, 2005). These methods are not considered satisfactory to diagnose ADHD as to meet the

criteria necessary for DSM-IVTR diagnosis. National surveys from cross-sections of society have relied predominantly on parental report of the diagnosis and/or less than the diagnostic criteria standards of the DSM-IVTR (Hargreaves, Shumway, Tei-Wei, & Cuffel, 1998; Pastor & Reuben, 2008; Visser, Lesesne, & Perou, 2007). Therefore, limited literature exists which accurately estimates the prevalence of ADHD among race/ethnic backgrounds as diagnosed from multiple settings and from multiple reputable sources (Barkley, 2006).

### **Etiology and Characteristics of ADHD**

Attention-Deficit/Hyperactivity Disorder is closely linked to heredity and genetics (Barkley, 2006; Biederman, et al., 1995; Cornish, et al., 2005; Kitchens, Rosen, & Braaten, 1999; McGough & McCracken, 2006; Reiff & Tippins, 2004; Stevenson, 1994; Tsal, Shaley, & Mevorach, 2005; Weisler, 2004). The overall heritability rate of ADHD is approximately .80 (Stevenson, 1994). Children whose parents have been diagnosed with ADHD have a nearly fifty-seven percent probability of inheriting ADHD (Barkley, 2006; Biederman, et al., 1995). Weisler (2004) found a seventy percent heritability rate of expression of phenotype. A seventy to ninety percent heritability rate was found by Cornish and colleagues (2005), though all authors report the causes of ADHD are multiple and can have both genetic and environmental bases (Barkley, 2006; Biederman, et al., 1995; Cornish, et al., 2005; McGough & McCracken, 2006; Reiff & Tippins, 2004; Stevenson, 1994; Tsal, Shaley, & Mevorach, 2005; Weisler, 2004).

Prenatal factors have been shown to affect the prevalence of symptoms of ADHD in children (Barkley, 2006; Pliszka, et al., 1999, Reiff & Tippins, 2004). Exposure to toxins found in tobacco, alcohol, drugs, and exposure to lead can put the fetus at a higher risk for developing ADHD symptoms, as well as other neurological disorders (Barkley, 2006). Also, complications in pregnancy, such as brain hemorrhaging, significant stress, low birth weight, and oxygen

deprivation may also result in a higher probability of being diagnosed with ADHD (Barkley, 2006; Pliszka, et al., 1999, Reiff & Tippins, 2004). The researchers suggest educating prospective mothers about the associated risks of their lifestyle choices and exposure as means of decreasing the risks of their child being diagnosed with ADHD.

Even though psychosocial factors have been studied as potential sources for ADHD, none of them have been specified as a definite particular risk for ADHD (Barkley, 2006, Reiff & Tippins, 2004). Additionally, according to Barkley (2006), even though outward expression of ADHD symptoms frequently occur in social contexts, and some behaviors are learned, the genetic probability of a child with ADHD to have parents with ADHD cannot be a determining factor of distinguishing between genetic and psychosocial influences. Evidence for psychosocial causes of ADHD has not been significantly demonstrated and is exaggerated by mass media (Barkley, 2006; Kitchens, Rosen, & Braaten, 1999).

### **Behavioral Features of ADHD**

Associated features of ADHD include externalizing problems such as low tolerance for frustration, short temper, bossy behavior, obstinacy, frequent and disproportionate demands that requests be met, unstable mood, lability, impulsivity, peer rejection, dysphoria, demoralization, low self-esteem, problems in school, conflicts with family members and other authority figures, difficulty dealing with children and adults, and insufficient self-application (Reiff & Tippins, 2004; Szatmari, Offord, & Boyle, 1989). Adults who have a diagnosis of ADHD are more frequently involved in criminal activity, physical aggression and violence, and other antisocial behavior than are those without ADHD (Goldstein & Ellison, 2002; Young & Toone, 2000). These behavioral symptoms are imperative to acknowledge as they greatly influence the social,

vocational, and academic functioning abilities of this population, similar to those of cognitive impairments.

In a case study conducted by Fabiano & Pelham (2003), researchers evaluated a male child with ADHD whose teacher experienced significant challenges modifying his behavior, even when utilizing a behavior modification program. They contended that the school behavior modification programs may not have the needed structure and intensity to assist the child make meaningful modifications in the behavioral patterns of children with a diagnosis of ADHD, and thus appear to be ineffective. Therefore, they systematically altered the intervention strategy until they noticed the behavior of the child was consistent with that of the rest of the classroom, and the teacher was satisfied with the modification (Fabiano & Pelham, 2003).

Parental involvement is another important aspect of treatment for children and adolescents diagnosed with ADHD (Hinshaw, et al., 2000; Reiff & Tippins, 2004). Hinshaw and colleagues (2000) proposed that family processes and parental interactions with the child are also valuable in treating symptoms of ADHD-combined type. They evaluated how the parental behavior affected the children's level of disruption, social skills, and internalizing symptoms. The children who were participating were placed in one of three groups, as chosen by the parents. A behavioral therapy approach was used for one group, medication management for a second group, and a combination of behavioral therapy and medication management for the third group (Hinshaw, et al., 2000). Results indicated children who were in the combined treatment group demonstrated the most significant improvement in disruptive behaviors and increase in social skills. The researchers attributed these results to the self-report from the parents that they were less frustrated with the children, and therefore used less negative, ineffective discipline strategies, thus leading to the changes. Findings indicate an interrelationship between behavioral

components and biological mechanisms as the most effective for treatment (Hinshaw, et al., 2000).

### **Cognitive Aspects of ADHD**

People with ADHD frequently exhibit difficulties with cognitive functioning. These perceived challenges can affect academic performance, social life and associated activities, and vocational choices and satisfaction. Hood et al., (2005) assessed various aspects of attention as a means to evaluate the effects of methylphenidate, a commonly used medication for ADHD symptoms, on cognitive functioning on performance tasks. The focus of the study was to determine the effects of the medication on various attention skills participants needed to use to complete a task. They compared participants with ADHD in a group to a control group, with no known cognitive or behavioral diagnoses. Participants with ADHD were evaluated pre- and post-administration of methylphenidate. The attention-skill-related tasks were separated by types, including sustained, selective, switching, and dual attention, as a means to evaluate and explain a more detailed investigation of the attentional processes of the participants. These neuropsychological tests provided the ability to evaluate individual areas of cognitive functioning and the relationship to the use of methylphenidate in people with ADHD (Hood, et al., 2005).

Results of this study indicated that prior to the methylphenidate administration the participants with a diagnosis of ADHD presented significantly inferior performance than the control group on attentional processes, most notably on tasks that involved response inhibition, divided attention, and visual searching (Hood, et al., 2005). Post-medication administration, the group with the diagnosis of ADHD demonstrated so much improvement that their attentional skills were shown to be at a relatively normal level. Test-retest and practice effects for the groups

were noted, though the researchers concluded that the utilization of methylphenidate yielded conclusive beneficial results, far greater than could be accounted for by experience of the test (Hood, et al., 2005). The investigators suggested that problems children with ADHD have can be attributed to impaired attentional processes, and not solely related to behavioral expression, thus adding to the benefit of medications to assist in treating various symptoms of ADHD (Hood, et al., 2005).

The nature of attentional problems and specific types of attention were studied by Tsal, Shaley, and Mvorach (2005). They assessed various attention deficits reportedly present in people with a diagnosis of ADHD, such as selective, oriented, executive, and sustained attention. Researchers reported that those with a diagnosis of ADHD, as well as those with learning disabilities, frequently demonstrate difficulties attending to relevant stimuli, particularly visual stimuli, which they determined was a selective attention issue. Investigators also reported increased challenges in the ability to sustain redirected attention for extended time periods. They attributed their findings to a possible deficits in attention-specific areas of the frontal lobe (Tsal, et al., 2005). The investigators indicated that normally, attentional processes are viewed as a unitary process with regard to ADHD. However, evidence indicates a more complex nature of attention, including various forms of cognitive processes that are related to the attention skills. The purpose of the study was to provide a further evidence of the role of certain attention deficits in children with ADHD by way of specific testing (Tsal, et al., 2005).

Tsal, Shaley, and Mevorach (2005) reported that children with ADHD most frequently experience deficiencies with sustained attention over other types of processing. More than fifty percent of the participants also displayed different levels executive attention, selective attention, and attention orientation deficits. Additionally, all participants with ADHD had a deficit in at

least one area of attention, and most exhibited deficits in multiple types of the attentional processes being evaluated (Tsal, et al., 2005).

Most research indicates persons with ADHD exhibit major deficiencies in executive attention, though Tsal and colleagues (2005) indicated sustained attention is the predominant deficit. Therefore, the current view of executive attention concerns are the primary issue for those diagnosed with ADHD may not be entirely accurate, as these results are consistent with other similar studies (Tsal, et al., 2005). Continued research on types and frequencies of attention deficits, as well as functional impairments of ADHD, is needed to better describe and define this condition.

### **Socioemotional Aspects of ADHD**

People with ADHD reportedly experience many interpersonal problems, though little research is available to evaluate these concerns. Adults with ADHD may have difficulty with family and marital relationship due to communication skills deficits, behavior management concerns, impulsivity, and attentional concerns (Rapport, et al., 2002; Saffren, et al., 2010). These interpersonal problems can also manifest themselves in vocational functioning and socioemotional venue (Barkley, 2006; Rapport, et al., 2002). Rapport and colleagues conducted a study to determine if adults with ADHD have the same interpersonal difficulties as children with ADHD. They found that adults with ADHD can exhibit similar problems with impulsivity, self-control, problem-solving, social conduct, consequential thinking, future-directedness, and creative-thinking (Barkley, 2006; Rapport, et al., 2002).

People with the diagnosis of ADHD often present with difficulties with proficiency in social situation and emotional regulation, frequently attributed to behavioral inhibition. They commonly act via impulse, instead of logically thinking of consequences to their actions

(Rapport, et al., 2002; Reiff & Tippins, 2004). This deficit in response delay yields lower tolerances for frustration, increased emotional arousal, and lack of forethought to socially acceptable behaviors. Experiential methods of expression of emotion and lack of impulse control leads to many of the underlying problems with these social skills (Barkley, 2006; Rapport, et al., 2002). Additionally, many of the reported interpersonal skills deficits can be accounted for when the individual misses or misinterprets social cues, potentially resulting in impulsive and/or poorly thought-out responses (Rapport, et al., 2002). Rapport and colleagues attribute some of the possible misinterpretations or miscues on potential visuoperceptual problems. If structural abnormalities exist in the brain in areas such as the corpus callosum, parietal lobes, the cortical-striatal loop of frontal lobes, or occipital lobes, behavioral deficits could be attributed to both attentional and visuoperceptual problems. As a result, people with ADHD would have increased difficulty in interpreting affect and emotional content in various social situations (Rapport, et al., 2002).

### **Social and Emotional Competence**

Evidence from research has shown that people with ADHD have deficiencies in the socioemotional arena. An understanding whether or not these individuals are self-aware of the deficiencies is valuable. Since interpersonal relationships are significantly related deficiencies for people with ADHD, Friedman and colleagues (2003) investigated social and emotional competencies this population. Emotional competency is “the ability of an individual to correctly identify emotions, have effective affect regulation, and be able to express one's emotions in a way that is appropriate to the situation” (Friedman, et al., 2003). The level of self-awareness of ADHD symptoms assists in defining how socially competent the individual is, and also might



indicate the coping strategies one uses to compensate for these symptoms (Barkley, 2006; Friedman, et al., 2003).

Friedman and colleagues (2003) evaluated emotional competence, self-perception, and ability to identify and express emotions in adults diagnosed with ADHD. Results of the study show that adults with a diagnosis of ADHD demonstrate a decrease in focus on emotional stimuli in certain situations and when asked to explain an emotional issue, they tend to talk more, but use fewer expressive words than those without a diagnosis of ADHD. The researchers report that participants with ADHD expressed more alexithymic symptoms than those without ADHD (Friedman, et al., 2003). Investigators also reported adults with ADHD did not self-identify as having communication problems regarding their own emotions or in identifying emotions of others. However, the data show these deficits do exist (Friedman, et al., 2003).

### **Neuropsychological Aspects of ADHD**

People with ADHD tend to exhibit various neuropsychological concerns and executive functioning deficits. These issues tend to follow the individual into adulthood (Barkley, 2006; Biederman, et al., 2006; Carr, Nigg, & Hendersson, 2006; Hervey, et al., 2004; Nigg, et al., 2005; Roth, et al., 2004). Adults with ADHD have a tendency to demonstrate deficiencies in attention, self-regulation, motor speed, memory, processing speed, verbal fluency, verbal learning, and expression of ideas (Barkley, 2006; Hervey, et al., 2004; Roth, et al., 2004). Additionally, due to these difficulties in verbal information processing, people with ADHD tend to perform better on visual tasks, instead of verbal tasks (Hervey, et al., 2004). Nigg and colleagues (2004) reported that personal traits of the individual and type of ADHD bring additional variability into executive functioning deficits. Other neuropsychological researchers have found that people with ADHD commonly have deficits in various portions of the brain

which can lead to behavioral problems like feeling restless, difficulty organizing and planning, procrastination, impulsivity, restlessness, and difficulty completing various tasks in expected timeframes (Hervey, et al., 2004; Hesslinger, et al., 2002; Pliszka, 2005; Ramsey & Rostain, 2004, 2004; Reiff & Tippins, 2004; Rapport, et al., 2002.; Weisler, 2004).

The difficulty with verbal processing of information supports common behavioral observations that people with ADHD frequently act as if they are not listening when others are speaking directly to them (Barkley, 2006; Hervey, et al., 2004). The most widely used medication treatment for ADHD, stimulant medications like methylphenidate, regulates dopamine levels in the neural network of people with ADHD (Hood, et al., 2005). The dopamine regulation allows for various improved attentional processes to be exhibited, resulting in better attention and focus.

### **Comorbidity**

Disorders frequently associated with Attention-Deficit/Hyperactivity Disorder include Oppositional Defiant Disorder (ODD), Depression, Bi-Polar Disorder, Antisocial Personality Disorder, Post-Traumatic Stress Disorder, substance abuse, sleep disturbance, Mood Disorders, Conduct Disorder, Anxiety Disorders, Learning Disorders, Communication Disorders, and Tourette's Disorder (APA, 2000; Barkley, 2006; Cleland, et al., 2006., Hesslinger, et al., 2002, McGough, et al., 2005; Weisler, 2004). Children diagnosed with ADHD often receive special education assistance provided by the Individuals with Disabilities Education Act (IDEA) as a result of these co-occurring learning or behavioral/emotional problems (McKinney, Montague, & Hocutt, 1993). Approximately 75% of adults with ADHD have a diagnosis of a comorbid disorder (Barkley, 2006; Rostain & Ramsay, 2006; Pliszka, et al., 1999). The determination of the clinician of which diagnosis is to be considered comorbid, or if comorbidity exists, is crucial

to effective treatment of the disorder or disorders (Barkley, 2006; Pliszka, et al., 1999; Weisler, 2004).

Interpretation of research results is often challenging, due to the vast number and frequency of possible comorbid conditions tied to the diagnosis of ADHD. Since many of the available studies include participants with ADHD and a comorbid condition, results may be confounded by symptoms of these conditions, as opposed to the symptoms of ADHD (Barkley, 2006).

### **Treatments for People with ADHD**

As indicated earlier, the etiology of ADHD is highly based on biological and genetic factors. Therefore, medication management is a very valuable component of treating many of the associated symptoms. Medication has been shown to be a beneficial and effective treatment in regulating symptoms of ADHD in both children and adults. Stimulant medications, as well as some non-stimulant medications, have been proven very useful as a treatment (Barkley, 2006; Hervey, et al., 2004; Nadeau, et al., 1999; Pelham, et al., 2005; Ramsay & Rostain, 2004; Reiff & Tippins, 2004; Weisler, 2004). Stimulants, such as methylphenidate, characteristically affect the dopamine, serotonin, and norepinephrine in the body, resulting in effective medicinal treatment of ADHD (Barkley, 2006; Reiff & Tippins, 2004).

Results from several studies indicates that stimulants appear to be the most effective chemical form of treatment, since non-stimulant medications, overall, yielded less significant symptom reduction (Barkley, 2006, Pelham, et al., 2005; Weisler, 2004). Stimulants assist in regulation of dysfunctional neurotransmitters in people with ADHD, such as dopamine and norepinephrine, which is attributed to the efficacy of the stimulant. When stimulant medications cannot be used for various reasons, a common non-stimulant medication, atomoxetine, works

solely to inhibit the reuptake of norepinephrine in the system. Research indicates, although effective for some individuals, the single effect on blocking norepinephrine reuptake (non-stimulant medication) yielded less significant efficacy in symptom reduction than the use of stimulant medications (Weisler, 2004). A once-per-day stimulant medication is reportedly the best choice for adults, especially those who exhibit symptoms of forgetfulness or disorganization (Reiff & Tippins, 2004; Weisler, 2004). Extended release stimulants have also been proven effective for children who need their medications to last throughout the school day (Nadeau, et al., 1999; Pelham, et al., 2005). Effective medication utilization and management can assist in improving many social, academic, emotional, and vocational impairments associated with ADHD (Barkley, 2006; Nadeau, et al., 1999; Reiff & Tippins, 2004; Weisler, 2004).

Other treatment methods of symptom reduction for people with ADHD are cognitive and behavioral therapies. Since ADHD has a high comorbidity rate, and many of the symptoms associated with ADHD can be found in other personality disorders, similar psychological intervention has proven effective (Barkley, 2006; Hesslinger, et al., 2002; Reiff & Tippins, 2004; Sohlberg & Mateer, 2001). Hesslinger and colleagues (2002) examined similarities between the self-regulation and impulse control symptoms of ADHD and borderline personality disorder. People with these diagnoses often exhibit substance abuse and dependence issues, low self-esteem and self-worth, and difficulties with interpersonal relationships. Therefore, they developed a modified form of Dialectical Behavior Therapy (DBT), a common therapeutic technique used to treat symptoms of borderline personality disorder, to be used to accommodate the diagnosis and treatment needs of adults who have been diagnosed with ADHD in group settings. The technique was used to psychoeducate people diagnosed with ADHD, as well as family and loved ones, about the disorder, and to teach positive coping skills to this population

(Hesslinger, et al., 2002). Results indicate the modified DBT yielded positive results in symptom reduction and coping skills education. Participants reported more knowledge of their diagnoses, as well as improved coping skills post treatment. Since people who have been diagnosed with ADHD commonly experience deficits in various aspects of life, these skill-based groups are considered effective for assisting in symptom reduction of people in this population (Hesslinger, et al., 2002).

People with ADHD often are also affected by how they view, understand, and react to stimuli in their environment (Barkley, 2006; Ramsay & Rostain, 2004; Reiff & Tippins, 2004). In light of these issues, people with ADHD develop their own schemata to cope with or interpret various life experiences (Ramsay & Rostain, 2004; Sohlberg & Mateer, 2001). Because of academic, social, and vocational difficulties, many people with ADHD develop negative self-evaluation and feel defective, flawed, incapable, and doubtful of their abilities. Because of these common negative feelings and schemata, people with ADHD may develop self-defeating beliefs and may become more avoidant and may procrastinate more (Ramsay & Rostain, 2004). These feelings can lead to depressed mood, lower levels of functioning, and learned-helplessness (Barkley, 2006; Ramsay & Rostain, 2004, Reiff & Tippins, 2004). Cognitive therapy can be very useful in helping people with ADHD cope with symptoms and change maladaptive behavioral trends which may have developed following a diagnosis of ADHD (Ramsay & Rostain, 2004; Sohlberg & Mateer, 2001). Cognitive therapy can work to help transform the dysfunctional or non-productive views, and can also assist people to identify their own individual strengths, effective coping skills, and areas of competency (Ramsay & Rostain, 2004; Sohlberg & Mateer, 2001).

While medication management and cognitive behavioral therapy have both been proven effective in treating symptoms of ADHD, most studies indicate a combination of medication and counseling is the most effective means of treatment (Barkley, 2006; Pelham, et al., 2005; Reiff & Tippins, 2004). Pelham and colleagues (2005) evaluated behavioral treatments, medicinal treatments, and combination treatments for symptom management in children who have been diagnosed with ADHD. They compared a behavioral modification sample of children, a sample of children who were given a methylphenidate transdermal patch, and a sample of children given a combination treatment. While both the non-combination groups showed improvement in symptom reduction and positive self-evaluation, the combination group yielded much higher efficacy in these areas. Therefore, a multidisciplinary approach is reportedly most effective for this population (Pelham, et al., 2005).

Another treatment method which has gained popularity is psychosocial treatment in combination with medication management. (Barkley, 2006; Murphy, 2006; Pelham & Gnagy, 1999; Rostain & Ramsay, 2006; Reiff & Tippins, 2004; Weisler, 2004). This type of treatment can involve individuals, couples, families, and groups. They include advocacy training, behavioral coaching, vocational recommendations, self-monitoring skills, planning skills, problem-solving skills, distractibility awareness training, life-transitions management, time-management, relationship-management, cognitive and behavioral coping skills, organization skills, enhanced communication skills, and other skills which the individual may need (Brown, 1996; Murphy, 2006; Reiff & Tippins, 2004, Rostain & Ramsay, 2006; Safren, Sprich, Perlman, & Otto, 2005; Solanto, Marks, Mitchell, Wasserstein, & Kofman, 2008; Weisler, 2004). Additionally, people with ADHD and their loved ones can be given information regarding various educational and vocational accommodations (Barkley, 2006; Weisler, 2004).

## **Functional Assessment History and Potential**

Functional assessment is defined as “an objective review of an individual's mobility, transfer skills, and activities of daily living, including self-care, sphincter control, mobility, locomotion, and communication. It is used to establish a baseline, to predict rehabilitation outcomes, to evaluate therapeutic interventions, and for standardizing communication for research purposes” (Dunlap, et al., 1993). The process of functional assessment includes detecting the problem behavior(s), identifying the circumstances in which these behaviors occur, detailing activities that occur before and after the behaviors, identifying potential triggers and rewards for the behaviors, response by others, subject reactions, and the frequency of the behaviors. The goal of this form of assessment is to gain clearer insight about the function of a behavior so the needs of the individual can be met more thoroughly and appropriately (Barkley, 2011). Most of the mental disorders found in the DSM-IV-TR (2000) require the presence of significant psychosocial impairments in major life activities separately from the incidence of various symptoms for a mental disorder diagnosis. Uncovering and evaluating the functional impairments in major activities of individuals is also used to determine disability and impairments. Additionally, until the development of the Barkley Functional Impairment Scale (BFIS), no other available assessment tools existed which were reliable, well-validated, were normed on general population samples within the U.S., or were conveniently accessible and easy to administer (Barkley, 2011).

### **Development of the Barkley Functional Impairment Scale (BFIS)**

The Barkley Functional Impairment Scale (BFIS) was developed by Dr. Russell Barkley as a way to evaluate or screen adults presented to his ADHD clinics for risk of psychosocial impairment secondary to ADHD, to measure self-rated psychosocial impairment as part of

research grants on the nature of comorbidity and impairment associated with ADHD, and to evaluate self-rated psychosocial impairment in children who have been diagnosed with ADHD as they age into adulthood (Barkley, et al., 2008). The BFIS is an empirically-developed scale that can be used with a population of adults throughout their usual life expectancy (ages 18-89 years). The BFIS can be administered via self-report in both a long and short form (15 domains and 6 domains respectively), reportedly has acceptable reliability and validity, is cost-effective, is relatively easy to use and score, and reportedly is able to yield valuable information on the potential risks that such impairments may pose. Barkley also reports the BFIS can be used in various settings, such as “clinical work, research, industrial/organizational settings, or any other venues where the evaluation of potential deficits in daily life activities is of interest.” (Barkley, 2011).

A distinction of the BFIS compared to other assessments is that, instead of focusing on the presence of symptoms of a disability, the BFIS allows clinicians to focus on functional impairments. That is, dysfunction in one’s social and occupational components of life, or how one’s many aspects of life are affected by the impairment. While self-report rating scales which assess quality of life and scales rating level of impairment; such as social relationships, recreation, family life, and work can overlap (Frisch, Cornell, Villaneuva, and Retzlaff, 1992 as an example), past scales do not assess the degree of functional ineffectiveness and harm being self-reported in these facets of life. These impairments are not evaluated, and only the extent of happiness, well-being, or satisfaction with these domains of life are evaluated. As an example, even though a score may be low on the domains of satisfaction or happiness, no correlation can be made as to whether the individuals perceive themselves as functioning ineffectively, having a



disability, or being impaired. The BFIS allows the investigator to evaluate these important domains.

With regard to rehabilitation counseling, this method of evaluation could prove valuable as a means to address concerns related to quality of life, academic adjustment in college life, and career decision state for people with disabilities. Additionally, if self-perceived functional impairment scored from the BFIS scale show utility, its use could potentially improve how counseling services are provided through disability services at colleges and universities across the country.

### **Quality of Life**

Recently, the term “quality of life” has attracted attention from investigators in the fields of health, economics, rehabilitation, psychology, and disability studies. Research in these areas has provided a means for improving the quality of life for many individuals, especially in the field of rehabilitation counseling (Cummins, 2000; Cummins, 2005). However, these various areas of research often view “quality of life” through differing perspectives, thus resulting in a multitude of definitions and theoretical models regarding this construct (Cummins, 2000; Cummins, 2005; Efklides, Kalaitzidou, & Chankin, 2003; Michelos, 1991). Therefore, an overview of the major concepts and measurement of “quality of life” is beneficial in helping to clarify and evaluate the term with reference to people with disabilities.

Over 80 scales which claimed to measure quality of life were analyzed by Cummins, McCabe, Gullone, and Romeo (1994). They found none of the scales reviewed could be validated to acceptable standards of the other scales. Cummins reported “The literature on quality of life contains well in excess of 100 definitions and models.” (Cummins, 1997, pp. 117). Therefore, “quality of life” has been studied from various perspectives, ranging from general

assessments of broad social indicators that measure culture, societal, or community (Andrews & Withey, 1976; Bishop, 2005; Cummins, 2000; Erickson, 1993) to evaluation of specific psychological indicators that measure the well-being of individuals or groups (Bigelow, Gareau, & Young, 1990; Brown & Brown, 2003; Campbell, Converse, & Rodgers, 1976; Flanagan, 1978, 1982; Heal & Chadsey-Rusch, 1985, The WHOQOL Group, 1995.)

Various definitions purport “quality of life” is synonymous with happiness that is dependent on the current mood or affect of the individual (Diener, 2000; Michelos, 1991). Bradburn (1969) outlines “quality of life” as being similar to well-being, which he reports to be the difference between the level of positive and negative affect. The terms “life satisfaction” and “well-being” were used interchangeably by Diener (1984). Edgerton (1990) reported conceptual differences between happiness, life satisfaction, and well-being. He concludes “happiness” is a short-lived affective state. He reports life satisfaction is more stable than happiness, addressing how well life expectations have been met by the individual. Well-being was defined as more of a global concept, addressing satisfaction with the nature and quality of life. Each of these terms was deemed to be a different construct with correlating components (Edgerton, 1990). He proposed that “quality of life” is an objective measure and “well-being” is more of a subjective measure. Cummins (1997) however, concluded that subjective well-being is a component of quality of life that evaluates perception of well-being. Felce and Perry (1995) define “quality of life” as “an overall general wellbeing that comprises objective descriptors and subjective evaluation of physical, material, social, and emotional wellbeing together with the extent of personal development and purposeful activity, all weighted by a personal set of values” (p. 60-62). They suggest that “quality of life” differs from other terms, such as personal life satisfaction, in that people who live in adverse conditions may still report satisfaction with life irrespective of

the condition (Felce & Perry, 1995 & 1997). The World Health Organization Quality of Life Group (WHOQOL, 1995) defines “quality of life” as “an individual’s perception of his or her position in life in the context of culture and value systems in which they live, and in relation to their goals, expectations, and standards and concerns” (The WHOQOL Group, 1995, p. 1405). This particular definition encompasses both subjective and objective indicators and can be used effectively to provide a thorough means of measurement. Therefore, this definition was selected for the present study.

### **General Conceptual Models of Quality of Life**

Quality of life is considered a multidimensional concept where both subjective and objective conditions must be evaluated in its explanation. These criteria exist in various forms throughout all domains of life, and include aspects of functional ability and well-being such as interpersonal, material, emotional, psychological, and financial well-being (Bishop, & Feist Price, 2002). A major criticism found in the research regarding quality of life is a lack of agreement among measurement tools. Additionally, no “best-fit” measurement tool has been accepted for utilization with all age groups or with people with various disabilities or conditions (Bowling, 1996; Cummins, 2005).

Conceptual models for evaluating quality of life are divided into four major categories (Felce & Perry, 1995). The conceptual basis of theories in the first category takes a “bottom-up” view. They propose that people who experience more pleasurable events in their lives will report a higher quality of life. That is, happy people are that way because they have experienced more happy things in their lives (Andrews & Withey, 1976; Bradburn, 1969; Diener, Sandvik, & Pavot, 1991, and Lucas, 2007). They advocate that ultimately, people will evaluate the quality of

their lives by evaluating the conditions in which they live, and then combining these conditions to form a global view.

The second category of general conceptual models takes a top-down approach and are considered more trait-dependent. Quality of life is equal to the satisfaction one experiences with life (Felce & Perry, 1995). The thought behind this theory is that the global aspect of personality of people predisposes them to interpret experiences in positive or negative ways. This predisposition determines the perception of happiness, not the objective experience. If this category is correct, people first evaluate overall quality of life, and then rely on that evaluation to gauge the specific aspects of life. In doing so, this top-down view can explain why many people report higher quality of life, even when faced with immense adversity, and would suggest that self-reported quality of life would not change due to services provided (Brown & Brown, 2003; Costa, McCrae, & Zonderman, 1987; Emmons & Diener, 1985, Mallard, Lance & Michelos, 1997; Watson, & Walker, 1996).

The third category explains quality of life as a mixture of both conditions in life and how satisfied one is with those conditions, and is considered to be a bi-directional view. That is, this approach suggests that quality of life is directly affected by a combination of the predisposition to happiness in the individual and the number of positive events that occur in his or her life. Using this view, a person with an optimistic personality who experiences positive objective events will report the highest quality of life. Conversely, a person with a pessimistic personality who experiences negative objective events will report a negative quality of life. With this perspective, people who naturally are optimistic would report greater improvement in their lives as a result of receiving rehabilitative services (Brief, Butcher, George & Link, 1993; Fiest, Bodner, Jacobs, Miles, & Tan, 1995, Zautra & Goodhart, 1979).

The fourth category of models is based on the relationship between external and sociological indicators and psychological states. This category explains quality of life as the combination of life conditions and the satisfaction of the individual in meeting or addressing these conditions. The relationship between the two is mediated by the personal values, expectations, and aspirations of the individual. Most of the current models fall into this fourth, broader category that evaluates existing life conditions as well as the values and expectations of the individual to explain how people are motivated to improve their own quality of life (Felce & Perry, 1995; The WHOQOL Group, 1995).

### **Quality of Life as a Satisfaction of Human Needs**

Many theories regarding human nature stress that behavior is directed by the desire of the individual to meet biological and psychological needs. That is, if the life needs of the individual are met, the better his or her quality of life will be, and therefore, quality of life could be assessed by how well one's needs are met. As these needs are met, individual evaluations of quality of life would increase (Huitt, 2007; Maslow, 1987).

A pioneer in human motivation throughout a majority of the last century, Abraham Maslow developed what has become the widely accepted theory of human nature based on a hierarchical pyramid of human needs (Maslow, 1968, 1971, 1987). These needs are classified as either deficiency needs or growth needs. The deficiency needs constitute more basic needs and form the base of the pyramid. As lower level needs are met, the individual then strives to satisfy the next higher level of needs in the hierarchy. In ascending order, the deficiency needs are safety and security, physiological, belongingness and love, and esteem needs (Maslow, 1987). People can move onto the next order of needs only when the lower orders are met. They can move up and down the pyramid based on whether or not lower order needs have been met, and

how their individual values tie into these orders. At the apex of the pyramid are the growth needs. Originally, Maslow suggested that an individual becomes “self-actualized” when all the deficiency needs are met. Later, he divided the growth needs into four separate levels and proposed that in achieving self-actualization, people seek to meet the “cognitive need” to know, understand, and explain their worlds. The “aesthetic needs” are explained as how people seek the beauty in life. Once people reach the stage of self-actualization, they strive for “self-transcendence,” where they go beyond their own needs to assist others in achieving their potential and self-fulfillment (Maslow, 1971, 1987; Huitt, 2007).

Quality of life is tied closely to these needs. According to Maslow, healthy people are ultimately motivated by the need to achieve self-actualization and the fullest potential within their capabilities. People with disabilities can be seen as frustrated in meeting their needs along the pyramid, due to the result of external confounds that keep them from achieving these needs. The disability is seen as an external roadblock of society, preventing them from satisfying all of their basic needs (Maslow, 1987).

Other theorists have modified Maslow’s hierarchy of needs for their own purposes. Wilson (1967) tied the achievement of needs into requirements for a happy life. That is, happiness in life was a product of the met or unmet needs of the individual. Like the fourth category of the general conceptual models from Felce and Perry (1995), Wilson posited that the level of fulfillment one needed in order to reach satisfaction of needs directly associate to the individual values, experiences, and aspirations of people. Wilson added that having unrealistic aspirations or aspirations which were too high constitute a major threat to individual happiness.

Allardt (1976) refined Maslow’s theory as well. He suggested that satisfaction of needs could be evaluated through observing the material living conditions, through patterns of

interactive behavior, and through formation of social bonds. He proposed that basic needs could be classified into “having,” “loving,” and “being.” When broken down, many of these classifications tie in closely with Maslow’s conceptualization, but Allardt suggests that need satisfaction is more objectively observed and is separate from happiness. He reported individuals may not be able to determine their level of need-satisfaction and may not know the requisite they to accomplish in order to improve their lives. However, they are still the best judges of their own happiness. Therefore, according to Allardt (1976), the satisfaction of the needs for having, loving and being are independent contributors to well-being.

### **Quality of Life across Life Domains**

Campbell, Converse, and Rogers (1976) developed one of the first detailed models of quality of life. They, like Wilson (1967) and Allardt (1976), defined quality of life by how satisfaction of and individual’s needs were met. Campbell and colleagues initially attempted to develop their study based on Maslow’s hierarchy of needs, but felt terms such as “self-actualization” were too abstract and could not be quantified easily when given to a sample of participants. Instead, they developed their study using “domains” of life (Campbell, 1976; Campbell, et al., 1976; and Campbell, 1981). The specific domains they used were family life, standard of living, marriage, friendships, work, neighborhood, city or town of residence, education, housing, health, evaluation of self, and the nation. Campbell and colleagues also noted the number of life domains was somewhat large and arbitrary (Campbell, et al., 1976). They reported the number of domains had to be broad enough to encapsulate all aspects of a heterogeneous population, relevant to most people within the population, and experienced by most people a majority of the time. They are reportedly the areas of life to which individuals devote most of their time, energy, and thought. The researchers found that life satisfaction with

individual domains accounts for a high percentage of the variation found in global reports of well-being. Also, scores of individual domains were found to be more reliable than the measures for assessing only global reports of well-being. Therefore, Campbell, et al.(1976) reported the utility of global assessments of quality of life is limited, though the individual domains that cause dissatisfaction with life can be evaluated and possibly modified to improve quality of life in those domains. Researchers report satisfaction with a particular domain depends on the perception of the objective attributes of that domain. The participant relates his or her own standards of comparison to the domains, such as aspirations, norm group, expectations, personal needs, and values to evaluate that attribute (Campbell, et al., 1976).

Campbell and colleagues also addressed the subjective quality of life of the individuals. This subjective quality of life involves values, expectations, and feelings. To evaluate quality of life, the participants assess personal experience compared to personal aspirations. Also, they compare their perception of life compared to those in a reference group with similar characteristics to their own. If the participants feel personal experience does not meet personal life aspirations, or if personal experience does not meet those of the reference group, life will be evaluated as less satisfying (Campbell, et al., 1976, Campbell, 1981).

Andrews and Withey (1976) also utilized the domains of life theory in assessing quality of life of Americans by evaluating the perception of well-being of the individual. They found people evaluate their global well-being by summing the domains of their lives, both positive and negative. Global well-being was determined by adding several levels of domains against a criteria by which the domains were judged, such as personal aspirations, standards, and goals. The results of the study showed that a linear combination of measures of satisfaction of life domains can be attributed to much of the variance in global life satisfaction.



While all domains carry importance to people of all ages and stages in life, the social environments and ages of people reportedly can vary their perceived level of relevance to the individual (Bowling, 1996). For instance, younger individuals may place higher priority on domains such as work, personal aspirations, and social relationships, whereas older adults may place higher priority on their physical health and family life. Those who live in areas where crime is prevalent, at any age, may place more value on personal safety above friendships (Scharf & Smith, 2003). Therefore, no consensus can be defined for quality of life for individuals of any age, race, disability, or lifestyle, and theory can support all of these dynamics. The general consensus, however, is that quality of life is a dynamic multidimensional construct of the human experience, comprising variables which influence other variables, as well as the individual as a whole.

### **Quality of Life, Adaptation, and People with Disabilities**

No discussion on quality of life would be complete without exploring the issues as it relates to people with disabilities and rehabilitation counseling. Many rehabilitation counseling researchers agree that factors pertaining to the quality of life for people with disabilities are the same as for those without (Cummins, 1997; Goode, 1994; Woodhill, Renwick, Brown, & Raphael, 1994). Other researchers contest that people with disabilities have more challenges in attaining a satisfactory quality of life due to lacking the capacity to establish relationships and perform various social roles which are required or expected in society (Bostick, 1977, Kottke, 1982). Empirical evidence shows that quality of life may vary among types of disability and with time and type of onset, but the assumption that people with disabilities do not have a good quality of life is not supported. All the research indicates that disability specific factors such as the age of onset, type of onset (gradual or sudden onset), body parts affected by the disability,

associated functional limitations, situational stability, pain, and the degree of visibility have influences on life satisfaction (Vash, 1981; Livneh, 2001). Evidence suggests that people who experience disabilities as a result of a trauma, such as a spinal cord injury from an accident, need to deal with the immediate shock the sudden onset of the physical limitations establishes. Once they are medically stable, they are able to adapt to the permanency of the disability, learn to alter their lives to adjust to the resulting limitations, and reintegrate back into a state of personal normalcy. People who develop disabilities over a span of time, such as rheumatoid arthritis or multiple sclerosis, cope with the initial experience of the disability as well as with the progressions and onset of limitations. Adaptation can be difficult because of the dynamic nature of limitations and progressive disabilities (Antonak & Livneh, 1995; Frederick & Lowenstein, 1999).

Quality of life is a major factor in adaptation to disability (Bishop, 2005; Livneh & Antonak, 1997; Livneh & Antonak, 2007). Improving quality of life for people with disabilities is one of the main principles of rehabilitation counseling (Bishop, Feist-Price, 2001; Livneh 2001). Quality of life can be evaluated both objectively and subjectively. For the purposes of this research, the subjective means of assessment was utilized. Since subjective quality of life and subjective interpretations of personal adaptation to disability follow comparable trends in that they both focus on emotional experiences and related perceptions, a direct correlation can be made between the two constructs. Awareness of this correlation is important for the rehabilitation counselor and psychologist when assisting clients in attempting to reach their full potential (Bishop, Chapin, & Miller, 2008; Diener & Suh, 1997).

Another aspect of adaptation to disability is the relationship between perceived functional limitation and quality of life. Livneh, Lott, and Antonak (2004) report if people perceive

themselves as having more functional limitations based on a disability, they will have more difficulty adapting and have lower subjective quality of life. Since individuals utilize different coping strategies and adjust to changes in life at different rates, a recent increase in research has emerged with more studies evaluating the efficacy of adjustment strategies (Lustig, Rosenthal, Strauser, & Haynes, 2000; Peterson, Park, & Seligman, 2006, Shrogen, et al., 2006).

Additionally, adaptation to college life can be challenging for students with disabilities. Students with disabilities, such as learning disabilities and ADHD, may discover increased difficulties as they relate to the college experience. These challenges can include the need for increased self-responsibility, decision-making, social adaptations, and time management skills (Field, Sarver, Shaw, 2003; Getzel, 2008). Because of the difficulties in adapting to these challenges, people with ADHD frequently take longer to graduate than their counterparts without any disabilities, experience lower college related self-efficacy, and have a higher drop-out rate (Horn & Bobbitt, 1999; U.S. Government Accountability Office, 2008 ). The consequences of these issues likely contributes to lower levels of subjective quality of life (Dijkers, 1997).

### **Measuring Quality of Life**

Several factors exist on the topic of the measurement of quality of life in people with various disabilities. Research has indicated that individuals with disabilities often report a lower quality of life than people without disabilities when an objective measure of quality of life is used (Dijkers, 1997). Due to the possible restrictions in activities, negatively impacted affective or cognitive functioning, or a combination of these concerns, objective measure indicators like education, community involvement, and income will yield higher quality of life results for people without disabilities than for those with disabilities. When subjective measures, such as the WHOQOL are utilized, people with disabilities yield much higher results on life-satisfaction

scales than they do using an objective evaluation tool (Dijkers, 1997; Stensman, 1985; Weinburg, 1984). Some studies have shown that several people with disabilities report equal satisfaction with life ratings than those without disabilities (Stensman, 1985). Since subjective measures allow for variations across aspects of life, disability concerns, and states, they are more likely to yield more valid assessments of life satisfaction among people with disabilities (Dijkers, 1997; Frank-Stromberg, 1988; Noreau & Sheppard, 1995).

### **The World Health Organization Quality of Life-Brief Version (WHOQOL-BREF)**

The World Health Organization Quality of Life (WHOQOL) project began work in 1991 as a means to develop a worldwide quality of life assessment which could be comparable across cultures. Researchers intended to develop a broader health assessment which covered domains beyond indicators such as morbidity and mortality and to include assessment of how disease and or impairment impacts daily activities and behaviors, perceived health measures, and functionality and disability (Fallowfield, 1990; World Bank, 1993; WHO, 1991). Although these measures can be used to assess the impact of a disease or disability, they do not necessarily address quality of life (Fallowfield, 1990). Additionally, a large majority of health status assessments have been developed in the United Kingdom or North America, and translation of these assessments for use in other venues has been reportedly unsatisfactory and time-consuming (Sartorius and Kuyken, 1994; Kuyken, Orley, Hudelson, and Sartorius, 1994). Another reason for the development of the WHOQOL was the lack of humanistic and more holistic elements in treating illness and disability. That is, most other measurements and treatment modalities focused on the medical model of treatment, but did not address perceived quality of life. The WHOQOL addresses perceptions of quality of life of people within the context of their own cultures and

values systems, their individual goals, and their principles and personal concerns. By doing so, increased attention was able to be concentrated on this important aspect of health and well-being.

The researchers stated “WHO's initiative to develop a quality of life assessment arises from a need for a genuinely international measure of quality of life and a commitment to the continued promotion of an holistic approach to health and health care.” (WHOQOL Group, 1994).

The WHOQOL-100 was developed to provide a comprehensive assessment of individual aspects of quality of life. The instrument was widely field tested in 18 countries and was shown to be both valid and reliable in measuring quality of life in people. Researchers found that the WHOQOL-100 was very tedious and lengthy for practical use in many instances. Therefore, they condensed the assessment into the brief or short form version, known as the WHOQOL-BREF.

The WHOQOL-BREF assessment tool is comprised of a total of 26 questions. In order to provide an all-inclusive assessment, an item from each of the 24 facets in the WHOQOL-100 is utilized, and two items from the Overall quality of Life and General Health facet also are included. The WHOQOL-BREF yields scores in four domains of quality of life: psychological health, physical health, social relationships, and the environment. Additionally, one facet of overall quality of life and general health are included. Domain scores between the WHOQOL-100 and WHOQOL-BREF correlate highly (0.89 or above), and the domain scores of the WHOQOL-BREF demonstrated high discriminant and content validity, test-retest reliability, and internal consistency.

### **Career Decision State**

Career decisions are often complex and demanding, especially for people with disabilities. Many jobs are constantly being created and evolved, while others are becoming

outdated or are being modernized with newly-needed skill sets. The presence of mental health concerns can have significant influences on the decision-making processes during career counseling, and can add to presenting career problems (Lenz, Peterson, Reardon, & Saunders, 2010, Zunker, 2008). Because of these concerns, awareness of mental health issues, functional impairments, and individual needs of clients are all important factors of which to be aware when providing effective counseling services to people with disabilities.

Young people are confronted with attempting to make career decisions as early as high school, and many have never thought of the importance and value these decisions will make in their lives and can lead to uneducated and uninformed decisions, stress, and anxiety. Therefore, an effective decision-making plan that can assist them in making successful career decisions is very important for these individuals. Cognitive information processing theory suggests that career decisions are comprised of one's choices about potential occupations, training, education, and eventual employment (Sampson et al., 2004).

Career decidedness consists of three levels: decided, undecided, and indecisive (Sampson et al., 2004). Decided individuals have committed themselves to an educational, occupational, training, or decision of employment. People in the Undecided category individuals are missing knowledge and information pertaining to their choice, and therefore have not yet made a decision. Indecisive individuals are thought to possess maladaptive problem solving strategies which involve dysfunctional anxiety levels, and therefore have also not made a career commitment (Sampson et al., 2004). Career decisions can be complicated by a lack of information or knowledge about one's potential options, as well as by both internal and external pressures, such as being required to choose a major prior to feeling ready, thus resulting in feelings of apprehension, confusion, or anxiety. Career development consists of "the total

constellation of economic, sociological, psychological, educational, physical, and chance factors that combine to shape one's career" (Sears, 1982, p. 139). All these factors directly influence decision making of anyone attempting to discover their career path, but also can be significantly influence by the presence of mental illnesses such as ADHD. Therefore, inclusion of an assessment of career decision would prove very valuable for the college-aged participants in the current study.

### **The Occupational Alternatives Question (OAQ)**

The Occupational Alternatives Question (OAQ; Zener & Schnuelle, 1972; modified by Slaney, 1980) is a measurement instrument used to evaluate occupational decidedness, and also includes the number of occupations the individual is considering. The OAQ is designed to examine whether or not having a first occupational choice, or choice compared to three other levels of career decidedness, is an indicator of career decision making readiness. The original OAQ is a two-question instrument used to measure career indecision, consisting of the following questions: 1) "list all the occupations you are considering right now" and 2) "which occupation is your first choice? If undecided, write "undecided." The "OAQ is scored as follows: 1= a first choice is listed with no alternatives; 2= a first choice is listed with alternatives; 3= no first choice is listed, just alternatives; and 4= neither a first choice nor alternatives are listed." Therefore, the higher the OAQ score of the participant, the greater their level of career indecision (OAQ; Zener & Schnuelle, 1972; modified by Slaney, 1980). The OAQ reportedly has demonstrated concurrent validity with similar measures of career indecision such as The Career Decision Scale, the Vocational Decision Making Difficulties Scale, and the Satisfaction with Career Scale (Slaney, 1980; Slaney, Stafford, & Russell, 1981). A test-retest reliability coefficient of .93 was found at six weeks (Redmond, 1973; Slaney, 1978). The Satisfaction with Choice Question

(Zener & Schnuelle, 1972), modification made by Holland, Gottfredson, and Nafzinger (1975) states “How well satisfied are you with your first choice?” It is rated on a six-point scale where “1 = well satisfied, 2 = satisfied, but have a few doubts, 3 = not sure, 4 = dissatisfied and intend to remain, 5 = very dissatisfied and intend to change, and 6 = undecided about my future career.” Slaney, Stafford and Russell (1981) reported average correlations of .43, .53, and .44 between the Satisfaction with Choice Question and other career decidedness measures, including the OAQ, Vocational Decision Making Difficulty Scale, and the Career Decision Scale.

### **Self-Efficacy**

Bandura (1977) defines self-efficacy as “a person's evaluation of his or her ability or competency to perform a task, reach a goal, or overcome an obstacle.” The term “self-efficacy” reportedly has various meaning, depending on the context. In an academic setting, “academic” self-efficacy must be utilized and evaluated, rather than “generalized” self-efficacy to obtain the desired effect. Academic self-efficacy has been shown to be a predictor academic performance in various disciplines (Lee & Bobko, 1994), and is defined as the extent to which students believe they will be able to succeed in school. These disciplines include English (Pajares & Johnson, 1994), physics (Fenci & Scheel, 2005), mathematics (Pajares & Miller, 1995), statistics (Finney & Schraw, 2003), health sciences (Eachus, 1993), and others.

Self-efficacy is a critical element in defining academic performance and success (Gerardi, 1990). Several related studies indicate that academic self-efficacy is a predictor of college grades (Bong, 2001; Brown, Lent, & Larkin, 1989; Hackett, Betz, Casas, & Rocha-Singh, 1992; Multon, Brown, & Lent, 1991) in addition to persistence (Zhang & RiCharde, 1998). In educational settings, Multon, et.al determined that academic self-efficacy has the strongest effect on school outcomes, whereas forms of self-efficacy that are considered more



generalized yield a less significant correlation to success and academic outcomes. Bandura (1997), suggested that assessments of academic domains of self-efficacy, such as semester grades, do not necessarily correlate directly to more global or generalized evaluations of self-efficacy, as they have a tendency to show more general competency or ability of the individual without clarification the exact construct being measured. Consequently, in academic settings, evaluations of self-efficacy should to be consistent with, as well as tailored to construct of the academic tasks being measured. Results of similar studies have shown that general self-efficacy measures were found to not be predictive of college outcomes (Ferrari & Parker, 1992; Lindley & Borgen, 2002), while academic self-efficacy was shown to be a consistent predictor of performance and persistence in college settings. Since college self-efficacy represents a more global evaluation of the desired traits necessary for overall success in collegiate life (academics, social life, and adjustment to new living arrangements), the use of a self-efficacy scale measuring these constructs is deemed more beneficial for this study.

Bandura (1993) suggests that beliefs about self-efficacy affect college outcomes via increasing persistence and motivation of students to accomplish their challenging academic requirements and via promoting more efficient utilization of acquired related skills and proficiencies. Self-efficacy is related to with motivational level, task choice, and effort and perseverance with the task (Compeau & Higgins, 1995; Hill, Smith, & Mann, 1987). Additionally, low self-efficacy is directly correlated to lack of motivation in academics in areas such as consistent performance or deficiency in effort and hard work (Schunk, 1991). Torres and Solberg (2001) were able to find a direct relationship between academic self-efficacy and the motivation utilized while studying.

The difference between the terms “self-efficacy” and “self-concept” are frequently debated in the research, and researchers often use these terms interchangeably. Frank Pajares (2002) reports self-efficacy is more closely related to beliefs of personal capability of the individual. It is more of a judgment of the individual's ability to perform given activities. Self-concept, on the other hand, is considered more general, including an evaluation of the individual’s competence and associated feelings of self-worth regarding those behaviors.

Marsh (1992) reports self-concept is more of a multi-dimensional and multi-faceted construct (I.e., individuals are able to have varying views about their own physical, social, emotional, or global perceptions of themselves. In the school setting, individuals can have distinctive varying self-concepts with relation to specific subjects and interests. Marsh’s (1992) research offers support for specificity of content of school-related self-concepts as they relate to academic progress and achievement.

Bong and Clark (1999) report self-concept and self-efficacy are different concepts, particularly in their construct composition. Consistent results have been found which indicate academic self-efficacy, or the beliefs about the capability of a student to succeed in particular school-related activities, illustrates direct and measurable effects on academic performance and persistence (Multon, Brown, & Lent, 1991). Bong and Clark’s (1999) study indicates that *self-efficacy* is a more highly correlated predictor of academic achievement than *self-concept*. Academic self-efficacy has been shown to positively and directly correlate to student success. Pajares (1996) reports self-efficacy is a positive predictor of academic performance in college. Gore's (2006) studies indicate that beliefs of the individual, as it relates to academic self-efficacy, can be utilized to predict academic performance and determination in college students.

## **Historical Background of Self-Efficacy**

Albert Bandura, who is known to have brought the concept of self-efficacy into the front lines of research, developed Social Learning Theory (1977, 1986) in reaction to studies of behaviorism from the 1950's and 1960's. In general, Behavior theory suggests that behaviors of individuals are learned and either repeated or decreased based on the consequences to the behavior. That is, if the consequences are pleasant, the behavior will be repeated and thus learned. If the consequences are unpleasant, the behavior tends to not be repeated, and is therefore not learned (Alberto & Trautman, 1995; Rosenberg, Wilson, Maheady & Sindelar, 1992). Bandura argued that, if individuals do not repeat unpleasant behaviors, as behavioral theory suggests, then what is the explanation for how those same negative behaviors are so frequently imitated in everyday society? As an alternative to behavioral theory, Bandura suggested a different explanation called "social learning theory." Social learning theory suggested that people learn by imitating role models in their environment. For example, children run a higher risk to use/abuse alcohol and other drugs if they observe their parents engaging in these acts and being permissive with their parental attitudes towards these activities (Hawkins, Catalano, & Miller, 1992). Similarly, social theorist can hypothesize that people who witness violence on TV, movies, or in video games are more likely to model similar behaviors, thus leading to higher crime rates in society.

Cognitive-behavior modification and social learning theory were combined, in the early 1980s, into a single theory that more effectively explains why people change behaviors and beliefs in the classroom (Coleman & Webber, 2002). Bandura (1986) explained that personality is a collaboration of three separate constructs: environment, behaviors, and psychological processes (self-efficacy); and developed efficacy expectation theories. These theories suggest

people are able to change behaviors to produce desired outcomes. For example, many people have a tendency to avoid tasks that they believe exceed their personal ability, and maintain carrying out activities they feel they are able to perform.

By the late 1990s, Bandura (1997) suggested that both positive and negative consequences of past behaviors have significant influence on future behaviors. He hypothesized that behaviors are affected by an interaction between both the environment and the individual, where these consequences are formed. Therefore, individual perceptions, or perceptions thereof, are believed to be the impetus for behavioral change. In turn, these perceptions will govern the product of the expectation. Bandura (1997) further hypothesized that the concept, “self-efficacy,” affected not only behavioral choices, but also effort one expends, their persistence, and their achievement. As a consequence, Bandura postulated that the degree of positive and optimistic expectations, which promote both persistence and effort, were the factors that lead to successful outcomes.

### **The College Self-Efficacy Inventory (CSEI)**

The College Self-Efficacy Inventory (Solberg, O’Brien, Villareal, Kennel, & Davis, 1993) is a self-efficacy assessment instrument that was developed from college self-help manuals regarding college-related concerns. Six separate researchers were utilized to evaluate and address important and relevant themes. These researchers reached a consensus on these themes and identified 19 items which were incorporated into one scale measuring overall college self-efficacy. The scale was divided into three self-efficacy subscales: course efficacy, roommate efficacy, and social efficacy (Solberg, et al., 1993).

The CSEI consists of 19 questions such as “How confident are you that you could successfully complete the following tasks...” Responses are reported on a Likert-type scale with

11 modifiers ranging from 0, “not at all confident,” to 10, “extremely confident.” The CSEI is scored by adding the reported scores of these 19 responses. The level of college self-efficacy can then be inferred from the total score. Scores directly correlate to the level of college self-efficacy.

Solberg and colleagues (1993) found the internal consistency of the CSEI using Cronbach alpha. The alpha coefficient was determined to be  $\alpha = .93$ . In a study measuring self-efficacy and college satisfaction, DeWitz and Walsh (2002) found the internal consistency of the CSEI to be .92. The subscales (course-efficacy, roommate-efficacy, and social-efficacy) were found to have alpha coefficients of .88. Solberg et al. (1993) established discriminant and convergent validity were found using a correlation matrix comprised of the instruments in the study and a principal component analysis with varimax rotation. The College Self-Efficacy Inventory (CSEI) was chosen for this study as it was found to be psychometrically sound and internally consistent.

### **Summary and Critique of the Current Literature**

While an ever-increasing amount of literature is emerging regarding etiology, symptoms, effective parenting/teaching methods, behavioral concerns, assessment/diagnosis, educational challenges, and treatments for ADHD, the relationship of functional impairments to important life and social skills, as well as professional functionality remains relatively untouched (Barkley, 2006). The Barkley Functional impairment scale is a fairly new scale, especially within the college environment and related constructs to the college and professional experience. Although the reported validity appears promising for use of evaluating functional impairments in people with ADHD, the validity of the scale should be evaluated in comparison to similar constructs in the field in order to demonstrate significant benefits. By doing so, researchers and other professionals in the field of counseling, rehabilitation, and professional development can address

the relationship more thoroughly and provide better guidance and assistance to people with ADHD.

Thus far, limited research exists on the construct of college self-efficacy, though an increasing emphasis on the need for research in the area exists (Grainger, 2002). Articles on self-efficacy can be found in several top tier journals, and highly respected professionals in the field are making self-efficacy and disability a central component of their professional interest. Research on self-efficacy in people with ADHD is still very limited however, as are studies on occupational concerns and quality of life for people with ADHD. Subsequent research has questioned the validity of the subscales in the CSEI (Gore, et al. 2005-2006), though there is sufficient validity to use the total score for this study (Owen, et al., 1988). More research on the topics of quality of life, college self-efficacy, and self-perceived functional impairments could assist rehabilitation counselors to be better able to help college students with ADHD (and potentially other disabilities) improve their adaptation, coping skills, thus possibly decreasing the amount of time needed to graduate as well as improve their college experience. Speculatively, these benefits could potentially increase self-efficacy and quality of life in the individuals. Therefore, a study that encompasses the relationships between measures of functional impairment, quality of life, college self-efficacy, and career decision state will prove very beneficial in understanding how the symptoms of ADHD affect individuals during this transitional stage in life.

## CHAPTER 3

### METHODOLOGY

This chapter introduces the methodology implemented to address the questions and hypotheses of the study. The participant selection, procedures, instrumentation, research design, and data collection and analysis are provided.

#### **Participant Selection**

The study sample consisted of college students who had registered with the Students with Disabilities Resource Center (SDRC) at Florida State University (FSU), with a diagnosis of Attention-Deficit/Hyperactivity Disorder (ADHD). No comorbid conditions were evaluated in this study, though students with ADHD and comorbid diagnoses were included in the study. Approval from the Florida State University human subjects committee was sought and obtained to conduct this study. In order to be eligible for this study, participants were comprised of current undergraduate and graduate students at FSU, who had been diagnosed with ADHD as a primary diagnosis, who consented to the study, and who completed the entire survey questionnaire packet. Two email invitations were distributed to a confidential group of 1108 Florida State students who were registered with the SDRC as being diagnosed with ADHD.

The G-Power formula for the linear multiple regression, using the parameters of 3 predictors, a power of .95, the alpha coefficient of .05, and effect size of .15 yielded a minimum sample size requirement of 74 participants (Faul, Erdfelder, Lang, Buchner, 2007). For the Pearson Product-Moment correlations, the G-Power formula was also utilized, using an exact bivariate, one-tailed normal model correlation, with the parameters of  $\rho_{H1} = .3$ , a power (1- $\beta$  error probability) of .95, correlation  $\rho_{H0}$  of 0, and an alpha coefficient of .05. This analysis yielded a minimum of 115 participants necessary for the study to have sufficient power. A

sample size of 150 participants (n = 150) was obtained and utilized for the study, yielding a response rate of 13.5%. Students who met eligibility for the study were potentially compensated by having their self-constructed identification number submitted to a raffle drawing with a possibility of receiving one of three prizes: a \$150 gift card, a \$75 gift card, and a \$50 gift card. Table 1 shows the demographic composition of the participants.

Table 1: Demographic Composition of Participants (n=150)

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Sex:

Male	n= 43 (28.7%)
Female	n= 107 (71.3%)

Race/Ethnicity:

African-American	n= 17 (11.3%)
Asian	n= 5 (3.3%)
Caucasian	n= 93 (62.0%)
Hispanic or Latino	n= 24 (16.0%)
Other	n= 11 (7.3%)

Age in Years: Min = 18 Max = 57 Mean = 23.14 Std. Dev = 6.338

Year in College:

Freshman	n= 16 (10.7%)
Sophomore	n= 25 (16.7%)
Junior	n= 31 (20.7%)
Senior	n= 60 (40.0%)
Graduate	n= 18 (12.0%)

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## Procedures

The sensitive nature of maintaining student confidentiality required the principal investigator to utilize an assistant to send the survey to a database of potential participants. A staff member from the SDRC served as this assistant, and was the sole connection to the student population. The primary investigator did not have access to the email list from the SDRC. Two invitation letters were sent by the principal investigator to the administrative assistant at the SDRC. The assistant distributed these emails, approximately two weeks apart to a database of current students who had been diagnosed with ADHD as a primary diagnosis, and who were utilizing services at the SDRC. These emails had a website link which directed the volunteer participants to the Qualtrics research website, thus ensuring anonymity and responses only from eligible participants. The instrument was distributed and information collected from eligible and volunteering participants via the Qualtrics system with no identifying information available to the primary researcher. Participants read a consent form and selected a radio button afterwards, indicating they had read the consent form and agreed to be participants in the study. Upon selecting the radio button indicating “yes,” they then had access to the survey module. Participants then completed the twelve question demographic sections which included the 3 questions from the OAQ, the fifteen questions of the BFIS-LF, the nineteen questions of the CSEI, and the twenty-six questions of the WHOQOL-Bref assessments. For the final question, participants were asked to provide an identification code for the research assistant to be able to utilize for prize distribution. Participants created their own codes. This code consisted of the second letter of their first name, the last three digits of their cellular phone number, and the first letter of their last name as their identification code. They were instructed to write down their code for the purposes of the raffle. At any time throughout the survey, if the participant decided

they no longer wanted to participate, they could log off of the site and their incomplete survey was neither submitted nor utilized. They were, however able to return to the website to complete the survey prior to the end date. No time limit was set for completion of the surveys, and the amount of time taken for completion ranged from under four minutes, if they completed the survey in one sitting, to eight days, if they chose to complete the survey in multiple sittings. Of the 184 participants who started the survey, 150 (approximately 81.5%) participants completed it. The survey was set up in a forced-response manner in that the participants could not advance to the next page of questions without answering all questions on the previous pages. This method of data collection was utilized to avoid any missing data from the surveys. The completed surveys were automatically saved in the Qualtrics program. When the sample size was reached, and after the survey was closed to participants, the primary researcher and assistant utilized a random number generator to draw three identification numbers from the list of the 150 participants. The primary researcher provided a “thank you” letter to the assistant which included instructions for the three raffle winning participants to pick up their gift cards at the SDRC. The primary researcher gave the administrative assistant the 3 gift cards, and the administrative assistant held onto them until they could be distributed to the winning participants. The administrative assistant sent out the “thank you” letter to the original list of eligible students, and the students with the corresponding winning identification were able to pick up their prizes at the SDRC. The principal investigator had no contact with any participants or the raffle.

Those interested in participating in the study were offered a website link to a survey in the Florida State Qualtrics Online Survey system which collected data guaranteed anonymity of the participants. The principal investigator provided the consent form and survey instrument

within this internet link, and the assistant distributed the link to a closed list of students (n=1108) who have been diagnosed with ADHD and who utilize the SDRC for assistance.

### **Instrumentation**

The Barkley Functional Impairment Scale (BFIS) was developed by Dr. Russell A. Barkley as a means to quickly evaluate or screen adults presented to his ADHD clinics for risk of psychosocial impairment secondary to ADHD, to measure self-rated psychosocial impairment as part of his large-scale federally funded research grants on the nature of comorbidity and impairment associated with ADHD (Barkley et al., 2008), and to evaluate self-rated psychosocial impairment in children with ADHD followed to adulthood. The scale can be used with a population of adults throughout their usual life expectancy (ages 18-89 years). A unique distinction of the BFIS compared to other assessments is that, rather than focusing on the presence of symptoms of a disability, the BFIS allows clinicians to focus on the functional impairments. That is, dysfunction in social and occupational components of life, or how one's various facets of life are affected by the impairment.

The BFIS can be administered via self-report in both a long and short form (15 domains and 6 domains respectively), and reportedly has acceptable reliability as the manual indicates the Cronbach's alpha to be .97 (Barkley, 2011). The author also reported the validity of the BFIS to be satisfactory (Barkley, 2011, p. 53-75). It is cost effective, is easy to use and score, and is able to yield valuable information on the potential risks that such impairments may pose. The author additionally reports the BFIS can be used in a multitude of settings, such as "clinical work, research, industrial/organizational settings, or any other venues where the evaluation of potential deficits in daily life activities is of interest." (Barkley, 2011, p. 2). The reliability of the BFIS is very good for the use of the assessment in research, clinical, and industrial/organizational

settings. The internal consistency of the BFIS has been found to be satisfactory, with a Cronbach alpha coefficient of .97 ( $F= 32.6, p <.001$ ). The Cronbach alpha coefficient for reliability was calculated during this study as well ( $\alpha = .889$ ).

Quality of life was measured using the WHOQOL-BREF (The WHOQOL group, 1998). The WHOQOL-BREF is a 26-item, self-report questionnaire, using a 5-point Likert scale where 1 = “not at all/very poor” and 5 = “an extreme amount/very good.” The mean scores are calculated using the instructions of the author, and range from 4 to 20. The authors define quality of life as “the individuals’ perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns.” This definition utilizes the viewpoint that quality of life is a subjective evaluation, and is based in a social, cultural, and environmental context. The WHOQOL-BREF was developed as a means to provide a short-form assessment of quality of life in four domains: Physical health (7 questions), Psychological health (6 questions), Social relationships (3 questions), and Environmental conditions (8 questions).

The WHOQOL-Bref was scored using the scoring guide as described in the literature (WHOQOL Group, 1994). First, the negatively phrased questions are recoded to yield positive sums. That is, the scores from questions three, four, and twenty-six are recoded where the answers 5=1, 4=2, 3=3, 2=4, and 1=5. The mean of questions within each domain are calculated and then multiplied by 4 to yield the raw score of the domain. These scores range from 0-20. The purpose of multiplying this sum by 4 is to make the final score directly comparable to scores derived by the WHOQOL-100, the longer version of this assessment. This score is then reduced by 4 and multiplied by 100/16 to yield a domain score on a 0-100 scale.

Questions 3, 4, 10, 15, 16, 17, and 18 were used to derive the physical domain scores. Questions 5, 6, 7, 11, 19, and 26 were used to derive the psychological domain scores. Questions 20, 21, and 22, were used to derive the social domain scores. Questions 8, 9, 12, 13, 14, 23, 24, and 25 were used to derive the environmental domain scores. The overall quality of life score was found by combining the domain scores of each domain and dividing the sum by 4 to obtain an average score.

Research shows the WHOQOL-BREF has good to excellent psychometric properties (Skevington, et al., 2004). Internal consistency Cronbach alpha coefficients for each of the four domains ranging from .66 (for Domain 3) to .80 (for Domain 4), signifying adequate internal consistency (Skevington et al., 2004). However, the values for Domain 3 need to be evaluated with caution as they are based on three scores (personal relationships, sexual activity, and social support), instead of the recommended four facets needed to evaluate internal consistency properly. Additionally, the authors report the reliability and validity of the instrument are sufficiently confirmed in that domain scores from the original WHOQOL-100 correlate to the WHOQOL-Bref at approximately 0.9 (Skevington et al., 2004). The Cronbach alpha coefficient for reliability was calculated during this study ( $\alpha = .862$ ).

The Occupational Alternatives Question (OAQ; Zener & Schnuelle, 1972; modified by Slaney, 1980) is a measurement instrument used to evaluate occupational decidedness, and also includes the number of occupations the individual is considering. The OAQ is designed to examine whether or not having a first occupational choice, or choice compared to three other levels of career decidedness, is an indicator of career decision making readiness. The original OAQ is a two-question instrument used to measure career indecision, consisting of the following questions: 1) “list all the occupations you are considering right now” and 2) “which occupation is

your first choice? If undecided, write 'undecided.'" The OAQ is scored as follows: "1= a first choice is listed with no alternatives; 2= a first choice is listed with alternatives; 3= no first choice is listed, just alternatives; and 4= neither a first choice nor alternatives are listed." Therefore, the higher the OAQ score of the participant, the greater their level of career indecision (OAQ; Zener & Schnuelle, 1972; modified by Slaney, 1980). The OAQ reportedly has demonstrated concurrent validity with similar measures of career indecision such as the Vocational Decision Making Difficulties Scale, The Career Decision Scale, and the Satisfaction with Career Scale (Slaney, 1980; Slaney, Stafford, & Russell, 1981). A test-retest reliability coefficient of .93 was found at six weeks (Redmond, 1973; Slaney, 1978). The Satisfaction with Choice Question (Zener & Schnuelle, 1972), modification made by Holland, Gottfredson, and Nafzinger (1975) states "How well satisfied are you with your first choice?" It is rated on a six-point scale where "1 = well satisfied, 2 = satisfied, but have a few doubts, 3 = not sure, 4 = dissatisfied and intend to remain, 5 = very dissatisfied and intend to change, and 6 = undecided about my future career." Slaney, Stafford and Russell (1981) described average correlations of .43, .53, and .44 between the Satisfaction with Choice Question and other career decidedness measures, including the Career Decision Scale, the Satisfaction with Career Scale, and Vocational Decision Making Difficulty Scale, thus demonstrating concurrent validity with these measures.

College adjustment was measured using the College Self-Efficacy Inventory (CSEI) (Solberg, O'Brien, Villareal, Kennel, & Davis, 1993). The CSEI is a self-efficacy assessment instrument that was developed from college self-help manuals regarding college-related concerns. Six separate researchers were utilized to evaluate and address important and relevant themes. These researchers reached a consensus on these themes and identified 19 items which were incorporated into one scale measuring overall college self-efficacy. The scale was divided

into three self-efficacy subscales: course efficacy, roommate efficacy, and social efficacy (Solberg, et al., 1993).

The CSEI consists of 19 questions such as “How confident are you that you could successfully complete the following tasks...” Responses are reported on a Likert-type scale with 11 modifiers ranging from 0, “not at all confident,” to 10, “extremely confident.” The CSEI is scored by adding the reported scores of these 19 responses. The level of college self-efficacy can then be inferred from the total score. Scores directly correlate to the level of college self-efficacy.

Solberg and colleagues (1993) report the internal consistency of the CSEI using Cronbach alpha. The alpha coefficient was determined to be  $\alpha = .93$ . In a study measuring self-efficacy and college satisfaction, DeWitz and Walsh (2002) found the internal consistency of the CSEI to be .92. The subscales (roommate-efficacy, course-efficacy, and social-efficacy) were found to have alpha coefficients of .88. Solberg et al. (1993) established discriminant and convergent validity were found using a correlation matrix comprised of the instruments in the study and a principal component analysis with varimax rotation. The authors report strong convergent and discriminant validity (Solberg et al., 1993). The College Self-Efficacy Inventory (CSEI) was chosen for this study as it was found to be psychometrically sound and internally consistent. The Cronbach alpha coefficient for reliability was calculated during this study as well ( $\alpha = .906$ ).

### **Data Analysis**

The data analysis was comprised of the following: Two email invitations were distributed to a confidential group of 1108 Florida State students who have registered with the SDRC as being diagnosed with ADHD. For the Pearson Product-Moment correlations, the G-

Power formula was utilized, using an exact bivariate, one-tailed normal model correlation, with the parameters of  $\rho_{H1} = .3$ , a power ( $1 - \beta$  error probability) of .95, correlation  $\rho_{H0}$  of 0, and an alpha coefficient of .05. Testing a multiple regression effect size at .15 was shown to be equivalent to testing a Pearson Product-Moment correlation of the square root of (.15) = .39 (Faul, Erdfelder, Lang, Buchner, 2007, p.9). For testing this correlation effect size, .3 was used. The analysis yielded a minimum total sample size of 115 participants for this study. For the linear multiple regression, the G-Power formula, using the parameters of 3 predictors, a power of .95, the alpha coefficient of .05, and effect size of .15 yielded a minimum sample size requirement of 74 participants (Faul, Erdfelder, Lang, & Buchner, 2007). Therefore, a minimum of 115 participants was required for this study. Of the 184 started surveys, 150 (or 81.5% of those who started the study) were completed and able to be used for data analysis. The sample size of 150 participants ( $n = 150$ ) yielded a response rate of 13.5% from the original 1108 students to whom emails had been sent. The demographic analysis of the participants is shown in Table 1. Distributional characteristics of the variables of interest are shown in Table 2. Also the percentage distribution of Occupational Alternatives Question (OAQ) scores are shown in Table 3.

The first hypothesis was tested by using a Pearson Product-Moment correlation to ascertain the strength of the relationship between the WHOQOL-BREF subscale and total score with respect to the individual mean impairment score of the BFIS. Effect size was calculated by using the  $\eta^2$  formula. Results of this analysis are shown in Table 4 in the next chapter.

The second hypothesis was tested by using a Pearson product-Moment correlation to ascertain the strength of the relationship between the cumulative score of the CSEI with respect to the individual mean impairment score of the BFIS. Effect size was calculated by obtaining the



$r^2$  value, which represents the population of variance explained. Results of this analysis are shown in Table 5 in the next chapter.

Prior to testing the third hypothesis, the OAQ score distribution was normalized through the use of a square root function. The outcomes of calculation showed no significance to the study. The third hypothesis was tested by using a Pearson product-Moment correlation to ascertain the strength of the relationship between scores obtained from the OAQ with respect to the individual mean impairment score of the BFIS. Effect size was calculated by using the  $\eta^2$  and Cohen's  $d$  analyses. Results of this analysis are shown in Table 6 in the next chapter.

Prior to testing the fourth hypothesis, t-tests were utilized to ascertain whether background variables of majority/minority status, age, and sex were significantly associated with quality of life. An ANOVA was used to ascertain if year in college was significantly associated with quality of life. Effect size was calculated by using the  $\eta^2$  and Cohen's  $d$  formulas for the t-test analyses, and the  $\eta^2$  formula for the ANOVA. All background variables (age, sex, race, and year in college) were shown not to be significantly associated with quality of life. The modification of the race responses from African-American, Asian, Caucasian, Hispanic or Latino, and Other to "Majority Status" (representing Caucasian respondents) and "Minority Status" (representing all other respondents) should be noted. Additionally, the variable of age was grouped into two categories of age 18-21 and 21+ to allow for a t-test analysis. Results of the correlational analysis are shown in Table 7 in the next chapter. A correlation among the predictors of quality of life was conducted. Effect size was calculated by using the  $\eta^2$  and Cohen's  $d$  formulas. Results of this correlation are discussed in the next chapter and are shown in Table 8.

A linear multiple regression analysis was utilized to test the fourth hypothesis in order to derive the amount of variation in the WHOQOL-BREF attributed to (a) the BFIS mean impairment score, (b) overall CSEI score, (c) the indecision score of the OAQ, and (d) the dissatisfaction score of the OAQ. Effect size was calculated by using the  $\eta^2$  formula for individual variables and the Cohen's  $d$  formula to measure overall effect size. Results of this analysis are shown in Table 9 in the next chapter.

## CHAPTER 4

### RESULTS

This quantitative study investigated the utility of self-perceived functional impairment levels obtained from the Barkley Functional Impairment Scale (BFIS) as a measure of self-perceived personal and social adjustment of post-adolescents diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD) and how they are related to quality of life, college self-efficacy, and career decision state. Previous chapters have introduced the problem of the study, provided an overview of variables related to the research questions, and presented an account of the methods used to test the hypotheses and to answer the research questions. Analysis of data, beginning with the sample descriptive data and continuing to inferential statistical analysis will be presented in this chapter.

Distributional characteristics were derived from all key variables to ascertain if they met the assumptions of the correlational statistics used to test the hypotheses. The mean, standard deviation, range, skewness, and kurtosis were obtained for all key variables and are presented below in Table 2. The statistical assumption is that all these variables are normally distributed. With the exception of the OAQ dissatisfaction score, all variables met this assumption. The OAQ dissatisfaction score failed to meet the parameter of skewness, as it equaled 1.27. The normal acceptable parameter for skewness is +/-1. The score distribution was normalized through the use of a square root function.

Table 2: Distributional Characteristics of Variables of Interest

Variable	$\mu$	SD	Range	Skewness	Kurtosis
<u>WHOQOL-Bref</u>					
Physical	63.43	16.04	25-100	-.890	-.624
Psychological	51.79	16.43	0-80	-.611	.237

Table 2 continued:

<u>Variable</u>	<u><math>\mu</math></u>	<u>SD</u>	<u>Range</u>	<u>Skewness</u>	<u>Kurtosis</u>
Social	59.11	23.39	0-100	-.228	-.511
Environmental	63.38	15.61	19-9	-.186	-.401
Total Score	59.41	14.35	22-92	-.214	-.099
<u>CSEI</u>					
Total Score	53.2	18.4	10-98.4	-.137	-.423
<u>OAQ</u>					
Indecision <sup>a</sup>	2.09	.87	1-4	.314	-.707
Dissatisfaction <sup>b</sup>	2.42	1.70	1-6	1.27	.280

<sup>a</sup>= 1= a first choice is listed with no alternatives; 2= a first choice is listed with alternatives; 3= no first choice is listed, just alternatives; and 4= neither a first choice nor alternatives are listed.

<sup>b</sup>= 1= well satisfied, 2= satisfied, but have a few doubts, 3= not sure, 4= dissatisfied and intend to remain, 5= very dissatisfied and intend to change, and 6= undecided about my future career.

The OAQ indecision and dissatisfaction scales may be considered as ordinal variables, as well as interval variables. Therefore, the percentage of distribution of responses to these variables will provide an indication of their distributional characteristics. These findings are presented below, in Table 3. The most frequent choice for the dissatisfaction score was that the participants were well-satisfied with their choice. These scores help to explain the findings with regard to skewness in that 38.7% of the participants reports they were well-satisfied, and 28.0% reported they were satisfied, but had a few doubts with their first choice. The findings indicate that 68% of the participants had at least a first choice, and that 66.7% expressed some degree of satisfaction with this choice. As indecision with regard to satisfaction with choice was scored and weighted as a 6 in the OAQ, the 23 participants who reported they were undecided caused the normal distribution curve to become skewed. This skewness was normalized using a square root function.

Table 3: Percentage Distribution of OAQ Scores (n=150)

<u>Variable</u>	<u>N</u>	<u>Percent</u>
<u>OAQ Indecision Score</u>		
1. 1 <sup>st</sup> choice w/ no alternatives	42	28.0
2. 1 <sup>st</sup> choice with alternatives	60	40.0
3. No 1 <sup>st</sup> choice, just alternatives	40	26.7
4. Neither 1 <sup>st</sup> choice nor alternatives	8	5.3
<u>OAQ Dissatisfaction Score</u>		
1. Well satisfied	58	38.7
2. Satisfied, but have a few doubts	42	28.0
3. Not sure	25	16.7
4. Dissatisfied and intend to remain	2	1.3
5. Very dissatisfied and intend to change	0	0.0
6. <u>Undecided about my future career</u>	23	15.3

A Person Product Moment Correlation was performed to test the first hypothesis that “there is an inverse correlation between self-perceived functional impairment and quality of life in students diagnosed with ADHD.” First, raw scores on the BFIS were calculated by summing the number of items marked zero through nine from the 15 questions of the BFIS. Where questions were answered with 10, indicating the questions(s) did not apply to the participant, scores were not counted. The sum of these responses yields the raw score. The mean impairment score was derived by dividing the sum created by the raw score by the number of questions used to create the sum. That is, any question in which the participant answered as “does not apply” was not utilized in the calculation. A Pearson Product Moment correlation was then calculated between the scores obtained from the domain and total scores of the WHOQOL-Bref and the mean impairment scores of the BFIS. Results of the correlations showed a moderate inverse

correlation between self-perceived functional impairment and quality of life in people with ADHD, with a p-value < .001, as indicated in Table 4. Therefore, the conclusion is that the hypothesis is accepted that quality of life is moderately and inversely associated with perceived level of functional impairment.

Table 4: Pearson Product Moment Correlation Between the World Health Organization Quality of Life Scale- Brief Version (WHOQOL-Bref) and the Barkley Functional Impairment Scale-Long Form (BFIS-LF) (n=150)

WHOQOL Domain	BFIS Mean Impairment Score	Effect Size ( $\eta^2$ )
Physical	-.578**	.470
Psychological	-.583**	.426
Social	-.448**	.257
Environmental	-.438**	.304
Total Combined	-.627**	.588

\*\* p < .001

The second hypothesis of “there is an inverse correlation between the self-perceived functional impairment and college self-efficacy in students diagnosed with ADHD” was tested using a Pearson Product Moment correlation. First, a total percentile score of college self-efficacy was obtained by summing the numbers scored by the respondents for the questions in the CSEI, dividing by the number of questions answered (n=19 as the assessment was set as mandatory answering in Qualtrics), and then multiplying the product by 10. Then, a Pearson Product Moment correlation was calculated between this obtained score of the CSEI and the mean impairment scores of the BFIS. Effect size was calculated by obtaining the  $r^2$  value, which represents the population of variance explained. Results of the correlations showed a moderate

inverse correlation between the scores on the BFIS and college self-efficacy in people with ADHD, with a p-value < .01, as indicated in Table 5. Therefore, the hypothesis is accepted that college self-efficacy is inversely, but weakly associated with perceived level of functional impairment.

Table 5: Pearson Product Moment Correlation Between the College Self-Efficacy Inventory (CSEI) and the Barkley Functional Impairment Scale-Long Form (BFIS-LF) (n=150)

Variable	BFIS Mean Impairment Score	Effect Size ( $r^2$ )
CSEI total	-.238**	.057

\*\*  
p < .01

The third hypothesis of “there is a positive correlation between level of indecision and perceived level of functional impairment,” and “there is a positive correlation between degree of dissatisfaction with career choice and self-perceived level of functional impairment” was tested using a Pearson Product Moment correlation. First, a level of indecision score was obtained by evaluating the responses given between questions 1 and 2 of the OAQ. If the participant listed only a first choice for both questions, and listed no alternatives, a score of 1 was given. If the participant gave alternatives for question 1 and a first choice for question 2, a score of 2 was given. If alternatives were given in question 1, but no first choice was provided in question 2, a score of 3 was given. If no alternatives were given in question 1 and no first choice was given in question 2, a score of 4 was given. To obtain the level of satisfaction score of the first choice of the participants, they indicated 1 as “well satisfied;” 2 as “satisfied, but “have a few doubts;” 3 as “not sure;” 4 as “dissatisfied and intend to remain;” 5 as “very dissatisfied and intend to change;” and 6 as “undecided about my future career.” A Pearson Product Moment correlation was calculated between the level of indecision and dissatisfaction scores of the OAQ and the mean

impairment scores of the BFIS. Effect size was calculated by using the eta<sup>2</sup> analysis formula. Results indicate a non-significant correlation between level of indecision and perceived functional impairments, and a weak correlation between satisfaction levels with career choice and perceived functional impairments. Therefore, the first part of the hypothesis is rejected that the level of indecision with career choice is related to self-perceived level of functional impairment. The second part of this hypothesis is accepted that dissatisfaction with career choices was correlated with self-perceived level of functional impairment.

Table 6: Pearson Product Moment Correlation Between Scores Obtained from the Occupational Alternatives Question (OAQ) and the Barkley Functional Impairment Scale-Long Form (BFIS-LF) (n=150)

Variable	BFIS Mean Impairment Score	Effect Size (eta <sup>2</sup> )
OAQ Indecision	.062	.022
OAQ Dissatisfaction	.173*	.057

\*p < .05

The fourth hypothesis of “functional impairment, college self-efficacy, and career decision state all will capture significant independent variation in the prediction of quality of life in people with ADHD” was tested using a multiple regression analysis to derive the amount of variation in the WHOQOL-BREF attributed to the BFIS mean impairment score, the cumulative CSEI score, and satisfaction and level of indecision scores of the OAQ. Scores indicate the independent variables are all unique indicators with regard to their prediction of quality of life, though they are all contributing factors in relation to quality of life.

Prior to testing the fourth hypothesis, t-tests were utilized to ascertain whether background variables of majority/minority status, age, and sex were significantly associated with quality of life. An ANOVA was used to ascertain if year in college was significantly associated



with quality of life. The background variables evaluated were age, sex, race (majority versus minority status), and year in college. Ages of participants were grouped into 18-21 for group 1 and 21 and over for group 2 so they could be analyzed via a t-test procedure. Sex was scored as 1=male and 2=female. Initially, race was scored as 1= African American, 2= Asian, 3= Caucasian, 4= Hispanic or Latino, 5= Native American, and 6= Other. For the purposes of the correlation, and due to the high number of Caucasian participants, the choice of “Caucasian” was changed to “Majority Status,” and all other choices were combined and changed to “Minority Status,” thus changing this demographic into an ordinal variable. Participant age, sex, and majority/minority status regarding race/ethnicity were analyzed using t-tests to determine differences between each variable and quality of life. Year in College was scored as 1= Freshman, 2= Sophomore, 3= Junior, 4= Senior, and 5= Graduate. A one-way ANOVA procedure was utilized to determine differences of year in school to quality of life. Effect size was calculated by using the  $\eta^2$  and Cohen’s d formulas for the t-test variables and the  $\eta^2$  analysis for the ANOVA, as the Cohen’s d formula is not able to be used to measure ANOVA effect size. None of the background variables were shown to be potential intervening variables associated with quality of life. An analysis of these demographics has been presented in Chapter 3. Results of the correlational analysis are shown in Table 7.

Table 7: Relationships Between Quality of Life Scores and Background Variables

<u>Variable</u>	<u>N</u>	<u>Mean</u>	<u>SD</u>	<u>Overall Significance</u>	<u><math>\eta^2</math></u>	<u>Cohen’s d</u>
<u>Race/Ethnicity</u>				<u>.930</u>	<u>.019</u>	<u>.284</u>
Majority	93	60.96	13.6			
Minority	57	56.89	15.2			
<u>Age (in years)</u>				<u>.995</u>	<u>.000</u>	<u>.001</u>
18-21	74	59.41	14.58			
22 and above	76	59.42	14.22			

Table 7 continued:

Variable	N	Mean	SD	Overall Significance	eta <sup>2</sup>	Cohen's d
Sex				.213	.010	.225
Male	43	61.72	17.41			
Female	107	58.49	12.90			
Year in School				.916	.007	
Freshman	16	57.56	16.18			
Sophomore	25	59.08	14.91			
Junior	31	58.03	12.29			
Senior	60	60.38	15.12			
Graduate	18	60.67	13.71			

\*\* p<.05

The results of this analysis show that none of the background variables were significantly (p<.05) correlated with quality of life. Therefore, inclusion of these variables was not needed in the regression analysis that would control for background variables since they had no effect on quality of life.

The following table (Table 8) shows the correlations between the BFIS, CSEI, and the Indecision and Dissatisfaction scales of the OAQ. The results show significant correlations, however none of the correlations were strong enough to raise a question of multicollinearity.

Table 8: Correlation Among Predictors of Quality of Life

Variable	1	2	3	4
1. BFIS	-			
2. CSEI	-.238**	-		
3. OAQ Indecision	.062	.107	-	
4. OAQ Dissatisfaction	.173*	-.169*	.571***	-

\* p<.05  
 \*\* p<.01  
 \*\*\* p<.001

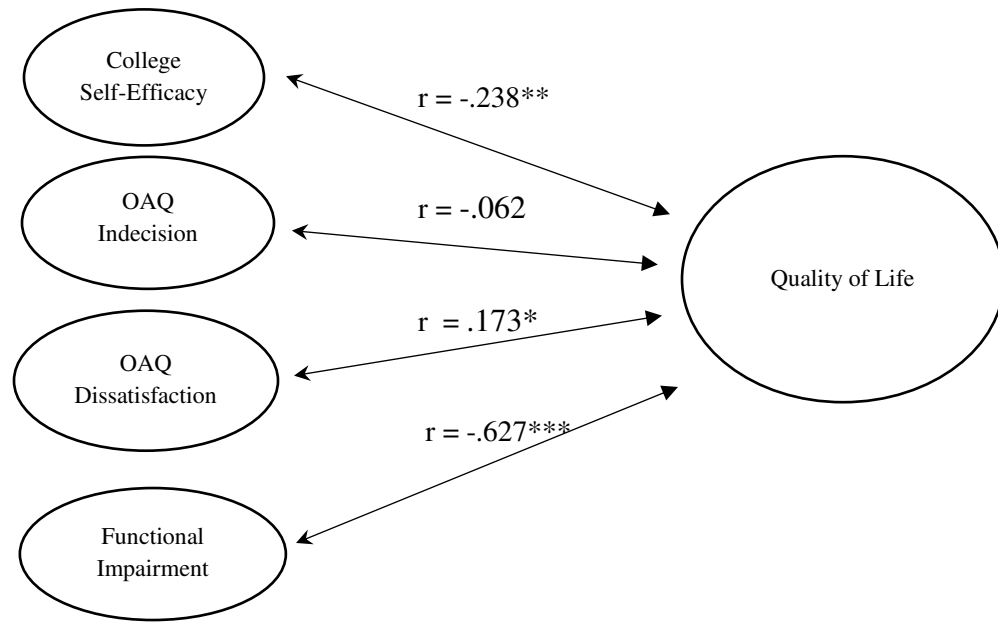
The results of the regression analysis in Table 9 show the relationships between the four predictor variables to their ability to predict the quality of life ( $R = .732$ , adjusted  $R^2 = .523$ , degrees of freedom = 4,  $F = 41.762$ ,  $P < .001$ ). Three of the four predictors captured significant independent variation in the prediction of quality of life. The only variable that did not capture variation in the prediction of quality of life was the OAQ indecision variable. A potential reason this variable did not predict quality of life in a similar manner as the others is explained in the limitations section of Chapter 5. The most powerful predictor of quality of life was BFIS mean impairment score ( $\beta = -.521$ ,  $p < .001$ ), followed by CSEI ( $\beta = .317$ ,  $p < .001$ ), followed by OAQ dissatisfaction with choice ( $\beta = -.172$ ,  $p < .05$ ). Individual effect sizes were calculated using the  $\eta^2$  formula. Overall effect size was calculated using Cohen's  $f$  formula. Results indicate perceived functional impairment, self-efficacy, and level of dissatisfaction with career choice significantly contribute to the quality of life of students with ADHD.

**Table 9: BFIS, CSEI, and OAQ as Predictors of Quality of Life Total Score (WHOQOL-Bref Total Score)**

Variable	r	b	Std. Error	$\beta$	$\eta^2$	t	R	R2	Cohen's f
BFIS Mean Total	-.627***	-3.961	.448	-.521	.90	-8.839***			
CSEI Total	-.238**	.247	.046	.317	.581	5.380***	.732	.536	1.11
OAQ Ind.	-.062	-.317	1.140	-.019	.039	-.278			
OAQ Dis.	.173*	-1.445	.592	-.172	.140	-2.440*			

\* $p < .05$   
 \*\* $p < .01$   
 \*\*\* $p < .001$

A visual interpretation of these findings can be seen below in Figure 3.



\*p<.05  
\*\*p<.01  
\*\*\*p<.001

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**FIGURE 3: Visual Interpretation of the Findings of the Study:**

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## CHAPTER 5

### DISCUSSION AND CONCLUSIONS

The purpose of this chapter is to present a discussion of the findings, as well as the limitations of the study and implications for future research and practice. This chapter begins with a restatement the purpose of the study. It is then divided into subsections. The first section is a discussion of the findings and conclusion referencing back to the development of the argument. The second section is comprised of the limitations of the study. The next section of this chapter discusses the implications for future research. The final section of this chapter will address implications for practice.

The purpose of the study was to investigate the utility of self-perceived functional impairment scores found in the Barkley Functional Impairment Scale (BFIS) as a measure of personal and social adjustment of post-adolescents diagnosed with Attention-Deficit/Hyperactivity Disorder and how it is correlated to quality of life, college self-efficacy, and career indecision and dissatisfaction. It examined the utility of the Barkley Functional Impairment Scale (BFIS) with reference to the author's report that this assessment is unique in that it allows clinicians to focus on the functional impairments of people with ADHD rather than focusing on the presence of symptoms of a disability, as previous assessments have done. In doing so, self-perceived functional impairment could be evaluated with reference to quality of life, career indecision, and college self-efficacy. The relationship between perceived functional impairments and important life and social skills, as well as professional functionality, remains relatively untouched (Barkley, 2006). At the onset of this study, the Barkley Functional impairment scale was a fairly new and untested scale, especially within the college environment and related constructs to the college and professional experience. The utility of the scales for use

with people with ADHD needed to be evaluated in comparison to similar constructs in the field in order to demonstrate significant benefits. This study provided insight into this need, and will allow researchers and other professionals in the field of counseling, rehabilitation, and professional development to continue to address the relationship more thoroughly and to provide better guidance and assistance to people with ADHD, especially on college campuses. This study incorporated the relationships between measures of self-perceived functional impairment, quality of life, college self-efficacy, and career decision state.

The demographic variables of the participants which were evaluated are the following: sex, age in years, ethnicity, and year in school. The researcher intended to compare these results to overall demographic information of students who utilize services at the SDRC, but that information currently is not collected. Therefore, the researcher compared these findings to overall demographics of the university from which data was obtained (Florida State University College Portrait, 2015). Forty-three of the 150 participants identified themselves as males (28.7%), while 107 were females (71.3%). The current population of the university is 45% males to 55% females. These results indicate a higher number of female participants were motivated to complete the study, and/or are receiving services for ADHD at the SDRC.

Seventeen participants identified themselves as African-American (11.3%), 5 were Asian (3.3%), 93 were Caucasian (62%), 24 were Hispanic or Latino (16.0%), 0 were Native American (0%), and 11 identified as Other (7.3%). Again, demographic information of people who were included in the SDRC email group currently is not collected, so a representation of the participants with relation to the target population was unavailable. The overall student demographic breakdown at Florida State University is 9% African-American, 3% Asian, 66% White (Caucasian), 17% Hispanic, <1% Native American and 5% other. These numbers

demonstrate a consistent demographic representation of participants to those who participated in the study.

The minimum age of participants in the study was 18 years old. The maximum was 57 years old. The mean age of participants in the study was 23.14 years old. While minimum and maximum ages for students was not reported overall for the university, the mean age of students at Florida State University is reportedly 21 years of age, with 7% being over age 25 (Florida State University College Portrait, 2015). The statistics obtained from the university only represent undergraduates, and this study also incorporated graduate students, so the mean age of all participants is undoubtable higher. However, These findings could indicated older students are more apt to participate in survey instruments, that students who have utilized disability services in the past are interested in learning about possible new methods of improving their quality of life

Sixteen participants in the study were reportedly in the Freshman class (10.7%), 25 were Sophomores (16.7%), 31 were Juniors (20.7%), 60 were Seniors (40%), and 18 were graduate students (12%). While demographic itemization was not available for the overall student population, a high percentage of seniors was noted by the primary researcher. Upon obtaining these background demographics, the researcher wanted to evaluate any associations with quality of life which could potentially confound outcomes. Therefore, t-tests and and ANOVA were utilized to evaluate this concern. Participant age, sex, and majority/minority status regarding race/ethnicity were analyzed using t-tests to determine differences between each variable and quality of life total scores. Year in College was scored as 1= Freshman, 2= Sophomore, 3= Junior, 4= Senior, and 5= Graduate. A one-way ANOVA procedure was utilized to determine differences of year in school to total quality of life score. Effect size was calculated by using the

eta<sup>2</sup> and Cohen's d formulas for the t-test variables and the eta<sup>2</sup> analysis for the ANOVA, as the Cohen's d formula is not able to be used to measure ANOVA effect size. None of the background variables were shown to be potential intervening variables associated with quality of life. Results can prove very beneficial in understanding how many variables related to ADHD diagnoses affect various aspects of life individuals during this transitional stage. The researcher examined the utility of self-perceived functional impairment scores, obtained from the Barkley Functional Impairment Scale (BFIS), with reference to the author's report that this assessment is unique in that it allows clinicians to focus on the functional impairments of people with ADHD rather than focusing on the presence of symptoms of a disability, as previous assessments have done (Barkley, 2006). Based on the results of this study, by focusing on how a person with ADHD self-reports functional impairment, the rehabilitation counselor can gain a better sense of potential related concerns the individual may be experiencing, and can better address these concerns through therapeutic intervention. The relationships found among scores measuring self-perceived functional impairment, self-perceived quality of life, and college self-efficacy in students receiving services, could potentially assist professionals in the field of rehabilitation counseling to utilize a multifaceted approach to assisting these individuals process related thought pattern, and to attain a more well-rounded and healthier perspective of their abilities, skills, and attributes. Addressing the relationship between self-perceived functional impairment and these important life and social skills will assist people with ADHD live fuller and potentially more productive lives.

Answers to four primary questions were sought by the researcher with reference to people with ADHD. The first question was "is self-perceived level of functional impairment related to quality of life?" The second question was "is self-perceived level of functional



impairment associated with college self-efficacy?” The third question posed by the researcher was “what is the relationship between self-perceived level of functional impairment and career decision state as measured by indecision and satisfaction with choice?” The final question was “what is the relationship between self-perceived level of functional impairment, college self-efficacy, and career decision state with respect to quality of life in students diagnosed with ADHD?” The primary researcher developed four hypotheses with relation to these questions: The first hypothesis was “There is an inverse correlation between self-perceived level of functional impairment and quality of life in students diagnosed with ADHD.” The second hypothesis was “there is an inverse correlation between self-perceived level of functional impairment and college self-efficacy in students diagnosed with ADHD.” The hypotheses to the third question were “there is a positive correlation between level of indecision and self-perceived level of functional impairment, and “there is a positive correlation between degree of dissatisfaction with career choice and self-perceived level of functional impairment.” The fourth hypothesis was “functional impairment, college self-efficacy, and career indecision all will capture significant independent variation in the prediction of quality of life in students diagnosed with ADHD.”

Results of the study show quality of life is moderately and inversely associated with perceived level of functional impairment. A moderate inverse correlation was found between self-perceived level of functional impairment and quality of life in people with ADHD. Participants reported a lower quality of life if they perceived themselves to have a higher level of functional impairment. These findings are consistent with established literature, though limited research has been found that directly evaluates the relationship between self-perceived functional impairment and quality of life. Most current research focuses on adaptation to disability, as

opposed to this relationship (Barkley, 2006; Bishop, 2005; Bishop & Feist-Price, 2002; Frederick & Lowenstein, 1999; Livneh, 2001; Livneh & Antonak, 2007; Livneh, Lott & Antonak, 2004). While limited research has been conducted on the relationship between functional impairment and quality of life of people with ADHD, this research fills a gap in how rehabilitation counselors can better assist and evaluate needs of these individuals and can address concerns related to this inverse relationship. The results of the study provide implications to professional practice in the field of rehabilitation counseling. If the BFIS is used as a diagnostic tool for students with ADHD, the relationships between perceived functional impairment and quality of life potentially could be addressed by counselors in a manner that assesses common domains between the two factors. If people are able to be assessed early on in their academic careers, and a perception of significant functional impairment is present, related counseling services can be initiated more quickly, thus potentially improving the individual's overall college experience and quality of life at an earlier point in time. Counseling services could include coaching of positive skills, social and academic confidence-building, potential assistive devices, or similar competencies to improve perceived functionality and emotional well-being. By incorporating these findings with existing literature on counseling people who are learning to adapt to disability (Bishop, 2005; Livneh & Antonak, 1997; Livneh & Antonak, 2007), the counselor could benefit in assisting people with ADHD by focusing on related adjustment strategies and positive coping skills to address possible misconceptions about their limitations. Previous research has shown that if clients with ADHD are able/willing to utilize these skills to help adjust and overcome perceived and reported functional impairments, their quality of life can be improved and they can experience a higher level of life-fulfillment (Barkley, 2006; Livneh & Antonak, 2004; Lustig et al., 2000; Peterson, Park, & Seligman, 2006; Shrogen et al., 2006). By

utilizing the BFIS as a tool to address the relationship between perceived functional impairments and quality of life, a counselor would be able to address how perceived functional impairments are affecting the quality of life of people with ADHD, and vice versa, therefore assisting these people in addressing potential underlying misconceptions about their perceptions, abilities, and coping strategies.

This study also showed that college self-efficacy is inversely, but weakly associated with perceived level of functional impairment. Participants reported a decreased level of college self-efficacy if they perceived themselves to have a higher level of functional impairment. Again, limited existing research is noted on the relationship between functional impairment and college self-efficacy. However, literature related to perceptions of adaptation and college self-efficacy is supported in that self-perceived confidence in the various skills necessary to be effective and proficient in the college environment is hindered by perceptions of barriers such as functional impairments (Coleman & Webber, 2002; Dijkers, 1997; Horn & Bobbit, 1999; Field, Sarver, & Shaw, 2003; Getzel, 2008). In a similar manner to the first hypothesis, if the BFIS is offered to students with ADHD, the relationship between the studied variables could be addressed therapeutically, and any concerns could be processed to help the individual better adapt to college life and related dynamics. Literature supports the idea that the rehabilitation counselor could utilize counseling strategies, such as cognitive behavioral modeling and social learning theory to assist clients in exploring and processing how utilizing various adaptations and positive coping strategies to overcome or better adjust to their ADHD-related concerns can help improve their confidence to complete college-related activities, thus creating a more fulfilling and beneficial college experience (Coleman & Webber, 2002; Gore, 2006; Pajares, 1996). Therefore, results of this study could allow the rehabilitation counselor the opportunity to provide more

specific services to the needs of the individual, as it pertains to improving confidence in abilities, performance, and overcoming possible false perceptions.

The primary researcher found that the level of indecision with career choice is related to perceived level of functional impairment, and that degree of dissatisfaction with career choices was correlated with perceived level of functional impairment. Limited research has been conducted with direct reference to career decision state and perceived functional impairment. However, literature regarding adaptation to perceived functional limitations, which is often a challenge for people with ADHD, seems to support these findings. Sampson and colleagues (2004) asserted that indecisive people are thought to possess maladaptive problem solving strategies which involve dysfunctional anxiety levels, and therefore have also not made a career commitment. Though the presence of perceived functional impairments adds to concerns about quality of life and self-efficacy, this presence was not shown to affect overall career decision state in this present study. Reasons for this finding could include the fact that indecision about career choices is seen as normal for college-aged people (Lenz et al., 2010; Sears, 1982). While the level of indecision was shown to not be affected by perceived functional impairment, a rehabilitation counselor could utilize scores on the BFIS to address how the perceived functional impairment of students with ADHD is affecting career choices and vocational concerns. Literature connecting quality of life with satisfaction of career choices is also supported in that people with lower perceived quality of life report more dissatisfaction with aspects of their lives, such as their career choices (Lenz et al., 2010; Zunker, 2008.) With relation to the results of the study, a counselor could evaluate the correlations and could use scores from the BFIS pre-emptively in identifying students with ADHD who might need additional assistance with vocational skills, confidence in abilities, or other assistance that counseling and/or the disability

services could provide. The rehabilitation counselor potentially could utilize the relationship between the scores on the BFIS and the OAQ Dissatisfaction scale as a basic guideline to address underlying reasons for confusion or dissatisfaction with career choices, which could also be causing lower perceived quality of life and lower perceived college self-efficacy.

The results of the regression analysis indicated that three of the four variable predictors significantly predicted the quality of life (self-perceived functional impairment, college self-efficacy, and dissatisfaction with career choice). These predictors captured significant independent variation in the prediction of quality of life. The only variable that did not capture variation in the prediction of quality of life was the indecision variable of the OAQ. Therefore, the primary researcher is able to report that perceived functional impairment, self-efficacy, and level of dissatisfaction with career choice significantly contribute to the quality of life of students with ADHD. These findings are supported in literature regarding various aspects of the adaptation process and barriers to improving quality of life and college self-efficacy in people with ADHD (Bishop, 2005; Bishop, Dijkers, 1997; Feist-Price, 2002; Getzel, 2008; Horn & Bobbit, 1999; Livneh, 2001; Livneh & Antonak, 2007; Livneh, Lott, & Antonak, 2004; Lustig et al., 2000; Peterson, Park, & Seligman, 2006).

This study helps fill a gap in research as findings indicate that career indecision, perceived functional impairment, and college self-efficacy all play a significant but independent role in quality of life. While some aspects of these constructs are similar in nature (such as the roommate self-efficacy measure of the CSEI and the marriage/cohabitation/dating domain of the BFIS), understanding the unique contributions of the relationships among these constructs is valuable. Rehabilitation counselors can use these results in school, professional, and clinical settings to address consumers' concerns with quality of life, self-efficacy, career indecision, and

perceived functional impairments. By addressing these areas of concern early in the academic experience in college, they could potentially assist these people to have more productive, confident, supported, and positive experiences as they move toward the workforce.

The relationships among these important factors of life can be analyzed and modified to address the specific needs of the individual. By doing so, the rehabilitation counselor can assist the consumer in reaching a more satisfactory quality of life by addressing concerns related to each of these constructs.

### **Limitations of This Study**

The first limitation is that the sample was geographically limited. The sample was obtained from a university in northern Florida. The university utilized was Florida State University. This university is predominantly comprised of students from the southeastern United States, and may not reflect the total population of the country.

A second limitation of the study is the relatively few number of questions in the Barkley Functional Impairment Scale (BFIS-LF). Even though the long form format was utilized, it still is only a 15 item instrument, and may not cover all areas of impairment people may be experiencing. The BFIS may work very effectively as a screening tool for people with ADHD, but it may be limited globally in its ability to be used as a diagnostic tool for all types of impairments. It was, however, a significant predictor in this study.

Another limitation was that participants needed to be registered in the student disabilities resource center (SDRC) with a primary diagnosis of ADHD. In doing so, the researcher was guaranteed a sample of people with ADHD who utilize student services. However, the sample does not necessarily represent a more globalized population of students.

A fourth limitation was that students were asked to complete a survey instrument via computer or smartphone. Those without easy access to this technology, those who prefer paper/pencil administrations, or those who had other disabilities that would make it difficult to complete via this method, and may have been deterred from participation.

The response rate of the participants is also a limitation to this study. Even though the G-power formula indicated a need for the sample size to be at least 115 participants, and the final sample size was 150 participants of 184 that started the survey, the email sent from the SDRC was addressed to 1108 participants. Therefore, the response rate of those who completed the survey instrument was only 13.5%. If this sample is representative of Florida State University, the sample and population can be generalized to other large research universities. However, if not, several factors could lend credence to this outcome. Many students do not check their school email accounts on a regular basis. Some see survey invites and ignore them. The presence of ADHD could also be a major factor in that they may not have the motivation or attention span to complete the survey instrument, or they intended to complete it, but became distracted by other responsibilities and never came back to complete it. Some may have had computer problems.

Another limitation to the study relates to the probability of college students with ADHD who do not have a diagnosis and/or who have not registered for services through the SDRC. Those students who have registered with the SDRC already have recognized they have a disability, and have already demonstrated a knowledge and desire to utilize services to assist them in overcoming or adapting to symptoms associated with ADHD. As Livneh and Wilson (2003) suggest, college students who have disabilities often tend to utilize both emotion and problem-focused coping strategies. Therefore, a threat to internal validity may be present in this study based on a potential selection bias. That is, the students who are utilizing the services

already are utilizing positive coping strategies to assist them with perceived functional limitations, and therefore the correlation between scores obtained in the BFIS to scores obtained in the other assessments may not be an exact representation of the true need of the population of students who have ADHD.

Another limitation of this study is the presence of comorbid conditions of some of the participants. Functional limitations, motivation, and other variables could be more closely associated to these other conditions, instead of being attributed to ADHD. Although obtaining a sample size of participants with a diagnosis of only ADHD could rectify this limitation, it would further limit the ability to measure the global utility of these instruments.

A final potential limitation to the study is the potential presence of the demand characteristic known as social desirability (Heinman, 2002). Due to the fact that the method of gathering data was via a self-report battery of questions, participants potentially could have responded in ways they felt were more socially desirable than honest.

### **Implications for Future Research**

The BFIS was shown as a beneficial functional impairment scale with regard to its relationship with college self-efficacy, quality of life, and characteristics of career decision state. Various aspects of this study were shown to be supported in the present literature, though limited research exists using these exact constructs. Future research could be conducted to assess how perceived functional impairment is related to specific aspect of ADHD itself (impulsivity, distractibility, hyperactivity), and how effective rehabilitation counseling strategies impact the subjective quality of life, college self-efficacy, and career decision state of this population. Another implication is to address whether or not self-perceived quality of life scores could be correlated with prediction of GPA and/or graduation rates. The following questions are examples



of potential future research from this study, and are gaps in current research. Could self-perceived quality of life scores be used to predict grade point averages of people? Could self-perceived quality of life scores be used to predict retention rates of students diagnosed with ADHD? Could results of this study be able to be associated with performance in different kinds of majors and/or disabilities? Could self-perceived quality of life scores be used with high school GPA and grades to predict additional variation in college grades? Could utilization of the BFIS upon initiation of disability services for students diagnosed with ADHD in colleges be used to help improve performance?

Future studies could focus on other disabilities, the influence of comorbid diagnoses, changes in self-perception after therapeutic intervention, and in job and life-satisfaction post-graduation from college.

### **Implications for Practice**

Data obtained in this study indicated that the use of the BFIS is supported for utilization in disability services to assist students with assessing the quality and effectiveness of counseling services for people with ADHD. The Barkley Functional Impairment Scale (BFIS) was easy to administer online. It was easy to read and comprehend. It was correlated with quality of life and self-efficacy, as well as with part of the career decision state. The BFIS was cost-effective. It was not biased by age, gender, race/ethnic background, or year in school. Reliability of the BFIS was found to be strong at  $\alpha=.889$ . Rationality for its utilization was supported by correlations with quality of life, self-efficacy, and dissatisfaction with career choice (QOL  $r= -.267$ ,  $p<.001$ ; CSEI  $r= -.238$ ,  $p<.01$ ; OAQ Dissatisfaction  $r= .173$ ,  $p<.05$ ).

In terms of assessing functional impairment, the mean impairment score of participants in this study was found to be 3.99, on a scale ranging from 0= not at all to 9= severe. Of the 150

participants, only 9 (6.7%) reported minimal functional impairment. Twenty-nine participants (19.3%) reported a mean impairment score which fell in the “somewhat impaired” range. Forty-one participants (27.3%) reported experiencing mild functional impairment. The remaining 37 participants (24.7%) indicated they experience moderate to severe functional impairment. Data from the correlations in this study show they could also be experiencing self-efficacy, quality of life, and career-related issues which all could be addressed through advising and services provided by the university and/or counseling services. These services could include assistance with personal adjustment, social adjustment, academic adjustment and support, and career advising/counseling.

The information gathered yields beneficial information about the use of the BFIS for students diagnosed with ADHD. The correlations found among self-perceived functional impairment, college self-efficacy, career decision state, and quality of life of people with ADHD could significantly benefit and direct which services are provided to people utilizing student disability resource centers in college campuses around the country. This study supports the literature that the BFIS is a reliable tool for use by clinicians working with students who have been diagnosed with ADHD (Barkley, 2011).

From a rehabilitation counseling standpoint, the relationships between scores obtained in the BFIS and scores obtained from the CSEI, WHOQOL, and OAQ in this study offer unique insight which could be used in therapeutic practice. For example, since quality of life was found to be moderately and inversely associated with perceived level of functional impairment, if the BFIS is administered prior to the initial therapy session with a rehabilitation counselor and scores indicate a high level of perceived functional impairments, the practitioner may want to focus therapeutic intervention on improving aspects of quality of life and adjustment to disability.

Parallel to this therapeutic intervention would be also to address issues associated with college self-efficacy, as scores on the CSEI also indicated an inverse relationship to self-perceived functional impairment. By addressing emotional and behavioral concerns related to quality of life and college self-efficacy, the rehabilitation counselor would be better able to assist the client with adaptation to disability, and could therefore potentially improved self-perceptions related to functional impairments.

A gap in literature was filled regarding the relationships of perceived functional impairment, college self-efficacy, career indecision, and quality of life among people with ADHD. The BFIS was shown to be an effective and beneficial tool to for use for college student disability services to assist in diagnosing potential needs of students with ADHD, and to evaluate an important aspect of quality of life that is overlooked by other assessments. By utilizing this tool, the rehabilitation counselor can more thoroughly evaluate the needs of the consumer, thus pointing the way to interventions that can facilitate adjustment and improved overall quality of life.

### **Conclusions**

Data obtained from this study support the utility of the Barkley Functional Impairment Scale (BFIS) as one component contributing to quality of life and college self-efficacy. An inverse correlation exists between perceived functional impairment and quality of life in people with ADHD. An inverse correlation exists between perceived functional impairment and college self-efficacy in people with ADHD. A non-significant correlation exists between level of indecision and perceived functional impairments, and a weak correlation between satisfaction levels with career choice and perceived functional impairments. Functional impairment, college self-efficacy, and career decision state all captured significant independent variation in the

prediction or quality of life in students diagnosed with ADHD. Based on these results, the utility of self-perceived functional impairment scores found in the Barkley Functional Impairment Scale (BFIS) as a measure of personal and social adjustment of post-adolescents diagnosed with Attention-Deficit/Hyperactivity Disorder and how it is related to quality of life, college self-efficacy, and career dissatisfaction was supported.

## APPENDIX A

### IRB APPROVAL MEMO

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#### APPROVAL MEMORANDUM

Date: 12/17/2014

To: Chad Sedam

Address:

Dept.: EDUCATIONAL PSYCHOLOGY AND LEARNING SYSTEMS

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research

The Utility of the Barkley Functional Impairment Scale (BFIS) as a Measure of College Self-Efficacy and Quality of Life of Students Diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD)

The application that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and two members of the Human Subjects Committee. Your project is determined to be Expedited per 45 CFR § 46.110(7) and has been approved by an expedited review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 12/16/2015 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is IRB00000446.

Cc: Deborah Ebener <debener@fsu.edu>, Advisor

HSC No. 2014.13627

**APPENDIX B**

**INITIAL EMAIL ATTACHMENT SENT FROM THE SDRC TO POTENTIAL PARTICIPANTS**

**HELP!!**

**Are you an FSU student receiving services at the SDRC for ADHD?**

**Do you want to potentially win \$50, \$75, or even \$150 for less than 25 minutes of your time?**

**Do you want to potentially help improve services offered to students with ADHD?**

**If so, you're in luck!**

**Please click the link below to learn more & let's help each other!!**

**[https://fsu.qualtrics.com/SE/?SID=SV\\_8dI0sHiTKickEn3](https://fsu.qualtrics.com/SE/?SID=SV_8dI0sHiTKickEn3)**

APPENDIX C

FOLLOW-UP EMAIL ATTACHMENT SENT TO POTENTIAL PARTICIPANTS

**FINAL REMINDER & LAST CHANCE TO  
PARTICIPATE  
IN A SURVEY & TO BE ENTERED IN A RAFFLE  
TO WIN \$50, \$75, or even \$150  
for less than 25 minutes of your time!**

(The survey will close on 5/2/15 and the raffle drawing will take place on 5/4.)

**Are you an FSU student utilizing services at the SDRC for  
ADHD?**

**Do you want to potentially help improve services offered to  
students with ADHD?**

**Please click the link below to learn  
more & let's help each other!!**

[https://fsu.qualtrics.com/SE/?SID=SV\\_8dI0sHiTKickEn3](https://fsu.qualtrics.com/SE/?SID=SV_8dI0sHiTKickEn3)

(Thanks to those who have already participated & thanks in advance to  
those who are about to do so!)

## APPENDIX D

### THANK YOU EMAIL ATTACHMENT TO PARTICIPANTS

Good afternoon!

First off, I sincerely want to thank each & every one of you for your participation in my dissertation survey! Your participation and feedback will help not only me in my effort to complete my degree and learn more about the life-dynamics of people with ADHD, but it will also hopefully shed some light on how to improve methods of assisting this population to attain higher achievement and satisfaction in life.

As a token of my gratitude for your completion of the survey instrument, and as promised prior to your participation, the identification # you provided at the end of the survey (**the second letter of your first name, the last 3 digits of your cell phone number, and the first letter of your last name**) was submitted into a random number generator that picked 3 participants to win the raffled \$150, \$75, and \$50.

The winning participant for prize #1 was ID# U709D

The winning participant for prize #2 was ID# A279K

The winning participant for prize #3 was ID# A370S

If your ID# is listed above, your prize is waiting for you at the SDRC. Congratulations! Please stop by the SDRC at your earliest convenience and present your ID # to Tim Ebener. He will distribute the gift cards.

Thanks again for your participation and have a safe, relaxing, and enjoyable Summer!

-Chad



## **APPENDIX E**

### **SURVEY EXPLANATION AND CONSENT FORM**

FLORIDA STATE UNIVERSITY

The Utility of The Barkley Functional Impairment Scale (BFIS)

as a Measure of College Self-Efficacy and Quality of Life

of Students Diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD)

You are invited to be in a research study of the Barkley Functional Impairment Scale and its relation to college self-efficacy, quality of life, and career decision state in college students with ADHD who are receiving services at the Student Disabilities Resource Center (SDRC). You were selected as a possible participant because you are registered at the SDRC as a student who receives services at FSU. I ask you to read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by Chad Sedam, a doctoral candidate at the Florida State University School of Education and Learning Systems, under the supervision of Dr. Deborah Ebener, an associate professor at the School of Education and Learning Systems. The study is being conducted in collaboration with the Student Disabilities Resource Center (SDRC).

Background Information:

The purpose of the study is to investigate the utility of the Barkley Functional Impairment Scale (BFIS) as a measure of personal and social adjustment of post-adolescents diagnosed with Attention-Deficit/Hyperactivity Disorder and how it is correlated to quality of life, college self-efficacy, and career indecision. If the BFIS is associated with these other measures, its use as a diagnostic and prescriptive tool will be supported to improve the effectiveness of psychological counseling services.

#### Procedures:

If you agree to be in this study, you would complete a short online survey questionnaire, which asks questions related to your quality of life, self-efficacy, functionality, and career decision state. You will be asked for basic demographic information at the beginning of the survey. I estimate the survey should take you no more than 20-25 minutes to complete. You will have until the end of the semester to complete the survey questionnaire, though your prompt completion is encouraged.

#### Risks and benefits of being in the Study:

The study has minimal risks to you as a participant, believed to be no more than the risks you experience in everyday life. By participating you may benefit indirectly, as a person who utilizes the Student Disability Resource Center (SDRC) for a diagnoses of Attention-Deficit/Hyperactivity Disorder (ADHD).

#### Reward for participation:

For participating in this survey, you will be entered into a drawing for 3 gift cards, (\$150, \$75, and \$50). This random drawing will take place once a pre-determined sample size is obtained. You must complete the survey questionnaire and provide your passcode (developed in the final survey question) to be entered into the drawing.

#### Confidentiality:

The records of this study will be kept private and confidential to the extent permitted by law. In any sort of report I might publish, I will not include any information making it possible to identify you or other participants. Research records will be stored securely and only the researcher, Chad Sedam, will have access to the records. All research records will be wiped, deleted, or shredded five years after your completion of the study.

The passcode you create will be the only identifying information the researcher will have that links you to the study, and will be used solely for the purposes of the raffle. Upon completion of the survey, the

passcode you create will be submitted with the survey instrument, and all participants will be contacted via the SDRC staff with the winning passcodes. (The staff will draw 3 passcodes at random and will send out an email to all participants indicating the passcodes of the participants who won.) If your passcode is drawn, you will be able to collect your prize at the SDRC.

#### Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision to participate or not will not affect your current or future relations with Florida State University, or any other site, institution, or organization. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

#### Contacts and Questions:

The researcher conducting this study is Chad Sedam, a doctoral candidate, under the supervision of Dr. Deborah Ebener, an associate professor, of the Florida State University School of Education and Learning Systems.

If you have any questions or concerns about this study and would like to talk to someone other than the researcher, you are encouraged to contact the FSU Institutional Review Board (IRB) at 2010 Levy Street, Research Building B, Suite 276, Tallahassee, FL 32306-2742, or (850) 644-8633, or by email at [humansubjects@magnet.fsu.edu](mailto:humansubjects@magnet.fsu.edu).

I encourage you to print a copy of this information to keep for your records.

Statement of Consent:

I have read the above information. If I have had questions, they have been answered. By clicking the “Yes” button below, I confirm that I am at least 18 years old, consent to participate in the study, and upon completion of the survey instrument, would like to participate in the raffle. By clicking the “No” button below, I confirm that I do not wish to participate in this study or raffle.

- Yes
- No

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## BIOGRAPHICAL SKETCH

Chad R. Sedam, M.S., CRC

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<b>Employment</b>	Oct. 2014- Present	Big Bend Community Based Care, Inc.
	<b>Utilization Management Specialist/Children's Behavioral Health Coordinator</b>	
	<ul style="list-style-type: none"><li>• Assist with ensuring all children are placed in the appropriate level of care and are receiving recommended services to achieve permanency</li><li>• Schedule and oversee process and coordination for all behavioral health services to include: suitability assessment appointments and evaluations and distribute to assigned case management staff, placement staff, SANH office/AHCA staff, and Intake and Placement for continuity of care inclusive of Medicaid Eligible Community clients.</li><li>• Review Comprehensive Behavioral Health Assessments (CBHA) referral forms &amp; forward them to appropriate provider agencies, track return receipt and send completed assessments to assigned case management staff.</li><li>• Schedule and complete STFC and TGC initial and concurrent reviews with Magellan Behavioral Health Care, Sunshine Health and treatment providers. Schedule and facilitate multidisciplinary teams meetings to determine if a child meets the criteria for RGC, STFC, TGC, SIPP, or enhanced rate foster homes.</li><li>• Communicate with the Intake &amp; Placement unit on new placements, reauthorizations, Child Placement Agencies/Foster Parent requests, and other placement needs to ensure stabilization and continuity of care.</li><li>• Facilitate and track all children that are in need of multidisciplinary team staffing</li><li>• Complete referral for children who are in need of Statewide Inpatient Psychiatric Program (SIPP) or Therapeutic Group Care (TGC)</li><li>• Create, establish, disseminate and/or train on utilization management decision-making criteria for service referrals.</li><li>• Monitor provider referrals for services for appropriate utilization and compliance with the criteria including reviews of POS requests.</li><li>• Maintain spreadsheet for high-end placements and youth at risk of high-end placements.</li><li>• Track spending for high-end placements.</li><li>• Develop and/or revise subcontract monitoring tools in conjunction with BBCBC's Quality Assurance department.</li><li>• Assist the Intake Placement Utilization Management Director and/or Contract Administrator with special projects as needed.</li></ul>	

Mar. 2014-Oct. 2014

Big Bend Community Based Care, Inc.

### **Intake/Placement Specialist**

- Complete all necessary paperwork (placement information form, chronological entries, waivers, funding requests, etc.) related to the placement of children.
- Facilitate placement by maintaining good relations with foster home/facility providers.
- Coordinate child specific staff meetings as needed with all relevant parties, to include Placement Stabilization Staff meetings
- Ensure accuracy of data in FSFN related to case transfer and placement.
- Provide on-call support as required or scheduled.
- Conduct permanency staff meetings as assigned.
- Assist with the coordination of services when needed.
- Thoroughly assess all referrals for licensed care placement and show diligence in identifying the most appropriate placement for each child.
- Monitor and track the Early Engagement process in accordance with Big Bend CBC's policy.
- Conduct Engagement staff meetings with families, Protective Investigators, Case Managers, Case Management Supervisors, and Children's Legal Services (when applicable) in a Family Centered and Trauma Informed manner.
- Assess cases referred from CPI to case management for appropriateness of referral and level of intervention.
- Conduct community outreach as needed, including foster home visits or MAPP panel presentations.
- Coordinate and track OTI and ICPC requests if assigned.
- Demonstrate problem-solving and teamwork.
- Exhibit expertise in Placement, as well as familiarity with Revenue Maximization
- Participate in the quality improvement process.

Jul. 2005-May 2014

Camelot Community Care, Inc.

### **Mental Health Therapist**

- Provide family and individual therapy for children between the ages of 5 and 17 with significant emotional and behavioral concerns (severe abuse and neglect history, psychological disabilities, behavioral anomalies, and educational disabilities)
- Provide guidance and parenting skills instruction for foster parents who work with specialized therapeutic foster children.
- Conduct continuing education training for families.
- Conduct intake assessments and biopsychosocial evaluations to determine therapeutic eligibility.
- Recruit and train potential specialized foster families

- Match potential clients with specialized foster homes to ensure familial fit and comfort

Jul. 2003-Jul.2005      Children's Home Society (Family Connections Dept.)

**Counselor IV**

- Provided multiple methods of counseling, in a therapeutic office setting, to children between the ages 5 and 17, for behavioral, social skills, coping with abuse and grief, ADHD, trauma, and various other emotional concerns.
- Led a sexual abuse treatment group for boys (Sep. 2004-Dec. 2004)

Aug. 2004-Dec. 2004      Florida State University

*Instructor for a course entitled "Vocational Aspect of Rehabilitation"*

Jan. 2004-May 2004, Jan. 2005-May 2005      Florida State University

*Teaching assistant for a course entitled "Assessment and Evaluation in Counseling and Rehabilitation"*

Jan. 2003-May 2003      Florida State University

*Instructor for a course entitled "Substance Abuse Counseling"*

Aug. 2004-Dec. 2004      Florida State University

*Instructor for a course entitled "Principles and Practices of Rehabilitation"*

Aug. 2002-Dec. 2002      Florida State University

*Instructor for a course entitled "Introduction to Human Service Professions"*

May 2002-Aug. 2002      Florida State University

*Teaching Assistant for a course entitled "Medical Aspects of Chronic Illness and Disability"*

Aug. 2001-May 2002, Jan.2005-May 2005      Florida State University

*Instructor for a course entitled "Communications and Human Relations"*

Jun. 2000-Jul. 2001

Sisters of Providence Hospital

***Mental Health Counselor***

- Provided one-on-one and group counseling to latency and adolescent psychiatric/behavioral inpatients (ages 4-17) in areas of anger management, depression, self-esteem issues, coping strategies, social skills training, sexual issues, and overcoming severe trauma.

Jan. 2000-Jul. 2001

Springfield College

***Graduate Associate for Dr. Michael Accordino***

- Assisted in grading quizzes and exams, leading classroom discussion, teaching classes, and conducting research

Sep. 1999-Jan. 2000

Goodwill Industries, Inc.

***Job Coach***

- Facilitated the development of skills necessary for consumers to enhance their marketability and transition into the working environment

Aug. 1998-Dec. 1998

The Pennsylvania State University

**Teaching Assistant for a class entitled “The Psychosocial Dimensions of Sport and Physical Activity”**

Jun. 1998-Aug. 1998

Variety Club Camp and Developmental Center

**Athletic Director**

- Worked with children with physical and mental impairments to teach and hone athletic skills in many adaptive situations, as well as motivated teams and developed team cohesion

Jun. 1997-Aug. 1997

The Pennsylvania State University

**Facilitator to the Freshman Testing, Counseling, and Placement Services**

- Facilitated and led discussions, with nearly 100 students per session, about expectations when entering the college social environment at a large state university such as Penn State, diversity awareness, and the dangers of drug and alcohol use, and how to ensure safety in a social environment

Education

Sep. 1994-Dec. 1995

The Pennsylvania State University

**Peer Educator in the Penn State Healthworks Program**

Educated fellow students in the safety and responsibilities of several different aspects of health, sexual issues, nutrition, and alcohol, tobacco, and other drug use and misuse

Aug. 2001-Present

Florida State University

**Doctoral Candidate in Rehabilitation Counseling with an Emphasis in Psychiatric Rehabilitation**

- All coursework, doctoral boards, internships, and dissertation prospectus defense have been completed and passed
- Currently writing a dissertation entitled “The Utility of the Barkley Functional Impairment Scale (BIFS) as a Measure of College Self-Efficacy and Quality of Life of Students Diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD)”

Aug.1999- May 2001

Springfield College

**Masters Student in Rehabilitation Counseling with an Emphasis in Psychiatric Rehabilitation**

- Relevant Courses: Counseling History and Philosophy, Psychiatric Rehabilitation, Statistics, Research Theory and Practice, Psychopathology, Counseling Theories and Techniques, Group Counseling, Medical Survey, Advanced Assessment Techniques, and Human Development of People With Disabilities
- Final GPA of 3.75
- Received an award for highest GPA and academic performance in the program.

Aug. 1998 - Jun. 1999

The Pennsylvania State University

**Graduate Student in Exercise and Sports Psychology under the Mentorship of Dr. Shannon Mihalko**

- Relevant Courses: Teaching Assistant for Psychosocial Dimensions of Sport and Physical Activity, Counselor Education, Advanced Exercise Psychology, Lab Research, JumpStart (health assessment and exercise prescription program), Biobehavioral Health

Jun. 1994 - Aug. 1998

The Pennsylvania State University

**B.S. in Kinesiology, Human Behavior and Humanities Emphasis**

- Relevant Courses: Psychology of Kinesiology, Philosophy of Sport and Physical Activity, Ethics of Sport, Counselor Education, Social Psychology, Biomechanics



**Pertinent  
Accomplishments**

*The Commission on Rehabilitation Counselor*

*Certificate No. 041227*

**Certified Rehabilitation Counselor (CRC)**

- Valid through March 31, 2016

*Children's Functional Assessment Rating Scale*

*Rater ID. 802-006-266*

**Certified CFARS Rater**

*Model Approach to Partnerships in Parenting (MAPP)*

*Tallahassee, FL*

**Successfully completed training and coursework for training others**

*Certificate of Excellence*

*Springfield College*

**Awarded to the top graduating student in the Rehabilitation and Disability Studies Department in his/her area of emphasis**

*Enfield Soccer TOPSoccer Program*

*Enfield, CT*

**Executive and Administrative Board Member**

- Organized programming, demonstrated skills, and explained teaching soccer skills to children with various physical, emotional, and mental disabilities.

**Presentations  
and  
Publications**

Willow, J.P., Sedam, C., Lubchansky, S., & Mihalko, S.L. Self-efficacy and affective responses to acute bouts of anaerobic exercise. Paper presented at the annual meeting of the Southeast Regional Sport and Exercise Psychology Conference, Charlottesville, VA, 2000.

Accordino, M.P., McReynolds, C.J., & Sedam, C.R. (2005). Psychiatric rehabilitation course content in rehabilitation counseling programs. *Journal of Applied Rehabilitation Counseling*, 36(4), 22-27.