

**The Relationship Between Age of Diagnosis and the Occurrence of Dysfunctional Career
Thoughts Among College Students With ADHD**

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Abstract

The purpose of this study was to examine the relationship between the chronological age of one's diagnosis and dysfunctional career thoughts among college students with Attention Deficit Hyperactivity Disorder (ADHD). What is currently known about the timing of ADHD diagnosis and how it could potentially impact or have an effect on one's career thoughts as it pertains to making educational and career decisions is nonexistent. Given the increase of ADHD among college students, it was worth exploring the impact that age of one's diagnosis has on career thoughts. The hypotheses of the study were that (a) the chronological age of diagnosis is inversely associated with the occurrence of dysfunctional career thoughts; (b) the greater the ADHD stigma, the higher the occurrence of dysfunctional career thoughts, and (c) the extent of ADHD age of diagnosis, ADHD stigma and extent of participation in career interventions all capture significant independent variation in the prediction of dysfunctional thoughts.

The participants included undergraduate students who were currently enrolled at two large public universities in the Southeast. The sampling included 447 undergraduate students registered with ADHD. Of those, 108 total students participated in the study. Data was collected through the use of Survey Monkey. The Career Thoughts Inventory (Sampson, Peterson, Lenz, Reardon, & Saunders, 1996a) diagnosed dysfunctional career thinking. The age of diagnosis was determined by participant self-report, in years, of time of official ADHD diagnosis. Participation in career interventions was measured by the High School Career Intervention Rating Scale, and the extent of ADHD stigma was measured by the ADHD Stigma Questionnaire (Kellison et al., 2010). The hypotheses tested used a linear regression analysis to determine the strength of the

relationships between (a) age of diagnosis and dysfunctional thoughts, (b) ADHD stigma and the occurrence of dysfunctional career thoughts, and (c) age of diagnosis, ADHD stigma and extent of participation in career interventions on dysfunctional thoughts. Age of first diagnosis was not predictive of dysfunctional thoughts, whereas ADHD stigma was predictive of dysfunctional thoughts. Additionally, ADHD stigma captured the most significant variation in dysfunctional career thoughts, whereas age of diagnosis and participation of high school career interventions did not. The results from the study were useful and practical information to both university career services and students with disabilities office.

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Glossary of Terms

ADHD Attention Deficit Hyperactivity Disorder

AOC age-of-onset criterion

APA American Psychiatric Association

ASQ ADHD Stigma Questionnaire

CA Commitment Anxiety

CASVE communication, analysis, synthesis, valuing, and execution

CIP cognitive information processing theory

CTI Career Thoughts Inventory

DMC Decision-Making Confusion

DSM Diagnostic and Statistical Manual of Mental Disorders

EC External Conflict

EOP early onset persistent

GPA grade-point average

HSCIRS High School Career Interventions Rating Scale

Chapter 1: Introduction

In this chapter I will present the foundation for the present study, including introducing the concepts that may be associated with attention-deficit hyperactivity disorder (ADHD), Career decision-making, stigma associated with ADHD and how the three may be related. I will also identify the gaps in the literature, which provide an opportunity for research, and I will delineate the specific research questions addressed by this study.

Foundation

As the college population with ADHD increases, there continues to be considerable attention given to college students with ADHD, due in part to the large number of students who have been identified with the disorder, and to the hardships they encounter (DuPaul, Weyandt, O'Dell, & Varejao, 2009). Among the population of college students with disabilities, 25% have been diagnosed with ADHD, whereas a smaller percentage of the overall college population (2 to 8%) reported having ADHD symptoms (DuPaul et al., 2009). Because ADHD is known to negatively impact a college student's educational and career endeavors (Faigel, 1995), it is imperative that educators and career development professionals assist them with the skills necessary to become better problem solvers, as they navigate through the lifespan.

The *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition (DSM-5) indicates that the essential diagnostic feature of ADHD "is a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development" (American Psychiatric Association [APA], 2013, p. 61). Among the adult population that has been diagnosed with ADHD other concerns coexist such as anxiety disorders, antisocial behavior, learning disabilities, conduct disorders, and substance disorders (Brown, 2000). Not only do adults with ADHD have trouble with monotonous tasks and organization, they also are likely to

experience problems maintaining jobs and lasting personal relationships (Wasserstein, Wasserstein, & Wolf, 2001). Additionally, adults with ADHD are likely to experience challenges when making career and educational choices in postsecondary settings. Their decision-making skills about careers and educational choices may be impacted by their dysfunctional career thoughts. “Decision-making skills are generic information-processing skills used by individuals to solve problems and make decisions” (Sampson, Peterson, Reardon, & Lenz, 2000, p. 156). “Dysfunctional thinking (i.e., information processing) can impair an individual’s ability to solve career problems and to make career decisions” (Sampson, Peterson, Lenz, Reardon, & Saunders, 1996b, p. 2).

An individual’s ability to pay attention and focus is necessary when making important life decisions. When an individual has ADHD and is unable to focus due to inattention or hyperactive symptoms, it can impact their ability to make effective career decisions (Norwalk, Norvilitis, & MacLean, 2009), thereby increasing the likelihood of experiencing higher dysfunctional career thoughts. An individual may also experience higher dysfunctional thoughts as a result of being diagnosed with ADHD earlier rather than later in their developmental lifespan. Although there is evidence that ADHD symptoms have an effect on dysfunctional career thoughts (Painter, Prevatt, & Welles, 2008), and there is evidence that a relationship exists between dysfunctional career thoughts and adjustment to one’s disability (Dipeolu, Reardon, Sampson, & Burkhead, 2002), no study has yet researched the relationship between the age of ADHD diagnosis and the occurrence of dysfunctional thoughts among college students.

Purpose of Study

The purpose of the present study was to investigate the relationship between the age of one’s diagnosis and the occurrence of dysfunctional career thoughts among college students with

ADHD. Given the potential relationship between the timing of one's ADHD diagnosis and dysfunctional career thoughts, the following general research question was posed: What is the relationship between the age of one's diagnosis and the occurrence of dysfunctional career thoughts among college students with ADHD?

According to Smith and Glass (1987), "correlational studies serve the purpose of building theory about phenomena by better understanding the constructs and how they relate to other constructs, while also enabling us to predict one variable from another" (p. 198). In the case of the present study, if a relationship exists between age of diagnosis and career thoughts, then each of these constructs provides information on how they relate to one another, and age of diagnosis is predictive of dysfunctional career thoughts.

Statement of the Problem

"Career decision-making requires attention to detail, patience, and delayed gratification with a focus toward future career aspirations" (Dipeolu, 2011, p. 420). It is likely that ADHD will significantly impact a college student's ability to manage and make important life decisions, especially career decisions (Norwalk et al., 2009). Hyperactivity-impulsivity may cause the college student with ADHD to make quick and rash decisions. This may result in not having taken the adequate time necessary to consider all of the possible alternatives and choices as they are navigating through the decision-making process. Second, inattentiveness may interfere with the college student's ability to stay focused on the task at hand. Not being able to focus on the career development process could be detrimental in that it affects the amount of time it takes to process and think through things. In turn, this may have a negative effect on the implementation stage of the career decision-making process. At this stage, it is likely that these individuals will feel several emotions regarding their career choices as a result of not thinking through their

decisions thoroughly. Specifically, some may feel sad, frustrated, disappointed, angry, and hopeless. Some may even stick with a career they are not happy with and some may even give up altogether.

To assist individuals who have struggled with ADHD to achieve academic and occupational success, human service professionals working in career services, disability offices, academic advising, and counseling offices need to provide appropriate interventions. Having knowledge of the impact of the age of diagnosis may provide useful information in the assessment of the ADHD condition and the development of appropriate interventions to facilitate career problem solving and decision making.

Developmental aspects of ADHD.

Early manifestations of ADHD. With each individual who has ADHD, the clinical picture changes over time and throughout each stage of development (i.e., childhood, adolescence, and adulthood; Ingram, Hechtman, & Morgenstern, 1999). Differential symptoms also tend to be present according to one's chronological age (Ingram et al., 1999). Most children who develop ADHD begin to act in ways identified as disobedient and hyperactive, and also have a minimal attention span by the age of 3 (Morris & Kratochwill, 1998). Although ADHD was thought to appear during preschool, age 7 to 9 is typically when children are referred for diagnosis of the disorder (Ross & Ross, 1982). Teachers, relatives, and day care employees may report extreme or erratic behaviors to parents of these children (Morris & Kratochwill, 1998).

Between ages 6 and 11 years, children with ADHD will have experienced hardships such as acting as if they are driven by a motor (hyperactivity), being disobedient at home and in school settings, acting impulsively, and experiencing extreme difficulties when working autonomously at school (Morris & Kratochwill, 1998). Aggressive, antagonistic behavior and

dishonesty are likely to occur between the ages of 8 and 12 (Mash & Wolfe, 2002). Mastery of content and task productivity in the classroom are areas the child with ADHD find troublesome (Barkley, 2006). According to their achievement tests, children with ADHD are not performing to their potential and as a result, most of the children referred for diagnosis of the disorder are achieving below grade level at school (Barkley, 2006). Restlessness, short attention span, and poor impulse control have a profound effect on their academic success in the classroom (Barkley, 2006). In a follow-up study utilizing 600 speech/language-impaired children, a strong association has been identified between ADHD and learning difficulties (Cantwell & Baker, 2001). Furthermore, in a study conducted by Holborow and Berry (1986), teacher questionnaires were distributed to a sample of elementary children who were in the first through seventh grades. From their large epidemiological sample ($N = 1,593$), learning difficulties were found in 27% of the children with hyperactivity (Holborow & Berry, 1986).

Social relationships with other children are also impacted by ADHD during the childhood years. Pelham and Bender (1982) estimated that interactions with other children were strained or problematic in more than 50% of children with ADHD. Social ineptness and stubbornness are typically observed in children with ADHD (Mash & Wolfe, 2002). Observers described students with ADHD as blatant, boisterous, quick to react, and extreme (Mash & Wolfe, 2002). Significant people such as teachers and parents will have labeled over 90% of these children with ADHD as difficult by age 6 (Morris & Kratochwill, 1998).

Adolescent manifestations of ADHD. Although the clinical picture begins to shift in adolescence/middle school years, it has been estimated that about 50% of children with ADHD will continue to display symptoms into adolescence (Young & Amarasinghe, 2010). Although hyperactivity does continue during this stage, it is considered much less conspicuous (Young &

Amarasinghe, 2010). Educational issues are a result of difficulty with rote learning material, not remembering details, and problems with organization (Robin, 1998). Adolescents with ADHD tend to experience an inability to keep an organized locker, turn in assignments to the teacher late (or neglect to turn in assignments altogether), and not keep track of important commitments (Robin, 1998). Furthermore, issues with learning and below-average performance in school are the most common challenges experienced by adolescents with ADHD. In addition to learning difficulties, the workload in middle and high school years increases. This is a time in their development when the student must work independently on tasks and be able to comprehend more information due to longer assignments while also having to answer to more teachers and keeping organized (Robin, 1998).

Feelings of inferiority, anxiety, and sadness are a few of the issues experienced by adolescents with ADHD (Robin, 1998). Sadness and low self-esteem have an effect on life's disappointments that adolescents may have experienced as children (Robin, 1998). Self-confidence issues, doubts about finishing their education, and sadness have been reported in as many as 25–30% of cases (Barkley, 2006). Adolescents with ADHD must now address peer and dating relationships, figuring out who they are as individuals, and puberty (Barkley, 1998). Inadequate relationships with family, friends, and teachers are a result of their lack of maturity and their subpar social skills (Ingram et al., 1999).

Adult manifestations of ADHD. Once thought to dissipate as one gets older, ADHD was known as a childhood disorder (Wasserstein, 2005). However, ADHD is not solely restricted to the childhood stage of development; rather, it is a prevalent and enduring disorder that can also occur in adolescence or adulthood (Young & Amarasinghe, 2010). Among many adults who had ADHD as a child, current research indicates that many of the symptoms remained unobservable

throughout childhood and adolescence (Wasserstein, 2005). According to the DSM-5 (APA, 2013), “several inattentive or hyperactive-impulsive symptoms must be present prior to age 12 years” (p. 60), although diagnosis can occur at any point in one’s development. Furthermore, “there must be clear evidence that the symptoms interfere with, or reduce the quality of, social, academic, or occupational functioning” (APA, 2013, p. 60).

According to Resnick (2005), an individual can be diagnosed with ADHD during the adult years, even though adult onset has not been established in the DSM. Additionally, the individual must have been negatively affected by the disorder in some way in their childhood years to qualify as an adult with ADHD (Barkley, 2006). To further illustrate, “This does not mean that the individual must have been formally diagnosed in childhood; it only means that sufficient symptoms were present to make it plausible that the condition existed at that stage of development” (Barkley, 2006, p. 430). Current research shows that while ADHD continues to persist, it changes form in adults who had it as children (Wasserstein, 2005). In a sample of clinically referred adults who all reported having ADHD as a child, Millstein, Wilens, Biederman, and Spencer (1997) found that inattention continued to be a persistent symptom in comparison to impulsivity and hyperactivity. A valid ADHD diagnosis continues to be a challenge for adults (which includes those who will also be referred to as the college population throughout this paper). Hyperactivity and impulsivity declines with age and becomes less observable in the adult with ADHD, whereas the symptom of inattention remains; thereby causing an inaccurate diagnosis (Goodman, 2009). Hyperactivity and impulsivity are typically the acting out behaviors that are observable in children and adolescents which would make it easier to diagnose, whereas inattention is more difficult to diagnose because these individuals are likely to zone out by daydreaming and staring. In summary, symptoms may not be as observable

in adults as they are in children and adolescents, because inattention is the primary symptom in adults.

The most profound hurdles for adults with ADHD are present while attending college and/or in employment settings (Wasserstein et al., 2001). College may be the setting in which many adults who were not diagnosed as a child or adolescent will experience their first signs or symptoms of ADHD. Individuals will now face difficulties being in unstructured environments such as the university setting, compared to the structured environment they once experienced at home while attending high school (Wasserstein et al., 2001). As a result, adults start to realize that their organizational and processing skills are strained (Wasserstein et al., 2001). Furthermore, the college student finds they are struggling in a distressing academic environment, and may find it especially hard to maintain the level of success they once had during their elementary, middle, and high school years (Weyandt & DuPaul, 2008). These individuals continue to experience poor academic and social skills even though they are high functioning in comparison to other individuals who have the disorder (Weyandt & DuPaul, 2008). Academic and social issues often result in feelings of inferiority (Jackson & Farrugia, 1997). Feelings of self-doubt, incapability, and inadequacy are experienced by adults with ADHD, which may cause lower academic performance and feelings of disgruntlement (Murphy, 1995).

Although the traditional way of thinking was that ADHD was only a childhood disorder, ADHD can exist at all levels of development (i.e., childhood, adolescence, and adulthood; Resnick, 2005). Furthermore, ADHD can also cause detriment to an individual's leisure activities, relationships with others, and one's work life (Resnick, 2005). ADHD may also impact an adult's career decisions. In order to better understand the relationship between ADHD

in adults and dysfunctional career decision-making, I introduce a model for career decision-making.

Cognitive Information-Processing Theory and Career Decision-Making

Dysfunctional career thoughts and their effect on the career decision-making process originally stem from cognitive information-processing theory (CIP; Newell & Simon, 1972). CIP not only provides a theoretical background, but also influenced the formation of each item for the Career Thoughts Inventory (CTI; Gilbert, 1997; Peterson, Sampson, & Reardon, 1991; Peterson, Sampson, Reardon, & Lenz, 1996). “CIP theory (see Figure 1) specifies that effective career problem solving and decision making requires the effective processing of information in the domains of self-knowledge, occupational knowledge, decision-making skills, and executive processing” (Sampson, Peterson, Lenz, Reardon, & Saunders, 1998, p. 118). As an important aspect of the CIP approach, “readiness is defined as the capability of an individual to make appropriate career choices, taking into account the complexity of family, social, economic, and organizational factors that influence an individual’s career development” (Sampson et al., 2000, p. 156).

As a result of ADHD symptoms, individuals may experience detrimental effects in educational as well as in employment settings, thereby potentially leading to negative or dysfunctional career thoughts (Painter et al., 2008). Painter et al., (2008) “examined dysfunctional career beliefs and job satisfaction in adults with symptoms of ADHD and found that ADHD symptoms were significantly predictive of dysfunctional career thoughts” (p. 178). Not only do these dysfunctional thoughts get in the way of making well-informed educational and vocational choices, they also interfere with an individual’s readiness to make choices. The

application of the community, analysis, synthesis, valuing and execution cycle (CASVE) is crucial to helping individuals make well-informed decisions and will be illustrated next.

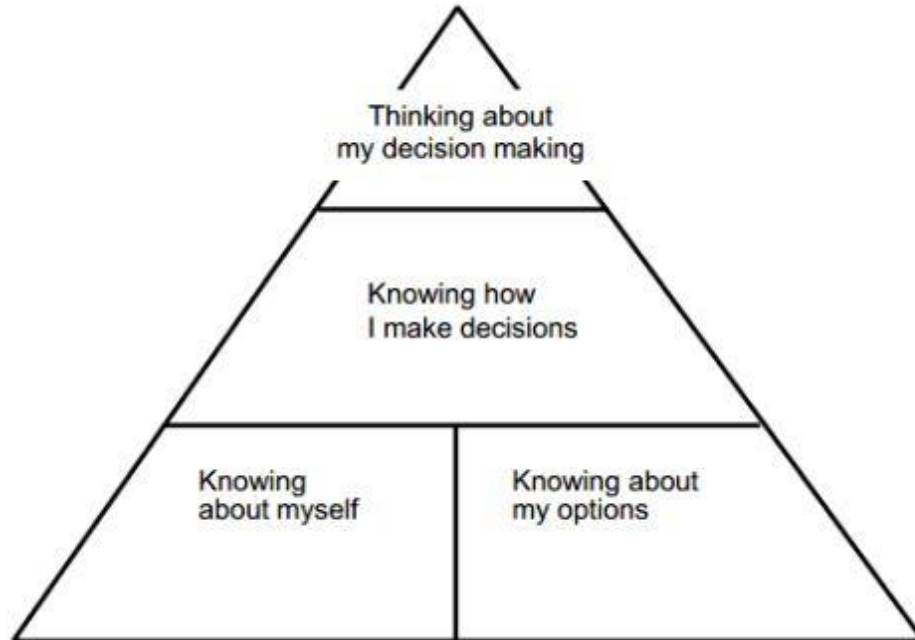


Figure 1. Pyramid of information processing domains in career decision making.

Note. CASVE—which is the center of the pyramid—stands for Communication, Analysis, Synthesis, Valuing, Execution. Source: *A Cognitive Approach to Career Services: Translating Concepts Into Practice*, by J. P. Sampson Jr., G. W. Peterson, J. G. Lenz, & R. C. Reardon, 1992, *Career Development Quarterly*, 41, p. 70. Used with permission.

Community, analysis, synthesis, valuing and execution cycle. Included in the decision-making skills domain of the pyramid is the communication, analysis, synthesis, valuing, and execution (CASVE) cycle (Peterson et al., 1991). According to Peterson and Lenz (2012), the CASVE cycle is defined as follows: (a) Communication (**C**). In this phase, a problem or gap exists and an individual must figure out a way to solve the problem. This involves being introspective about one's life circumstances, emotions, and cognitions. (b) Analysis (**A**). In this phase, the problem components are determined. (c) Synthesis (**S**). Synthesis elaboration is the process in which an individual expands their options while synthesis crystallization is the process in which an individual narrows their options to a manageable number. (d) Valuing (**V**). An

individual then evaluates how each of the options has an effect on their community, cultural group, significant others, as well as to oneself. A ranking system of each of the options then allows the problem to be solved. (e) Execution (E). A plan of action is then executed to try out one's preferred choice (or goal). This cycle leads to a series of milestones that will need to be completed to achieve one's chosen goal. Some career development goals include seeking employment and choosing a program of study, a major, or occupation. The individual may cycle back through the communication phase upon execution of the plan. This is likely to determine if the gap has been removed and if the problem has been solved. If the problem has not been solved, the individual cycles through the CASVE cycle all over again (Peterson & Lenz, 2012). While navigating the CASVE cycle, it is likely for an individual to experience dysfunctional career thoughts. The CTI will be discussed next as a useful tool to diagnose these thoughts.

Career Thoughts Inventory. The CTI (Sampson, Peterson, Lenz, Reardon, & Saunders, 1996a) was developed to diagnose dysfunctional career thinking. Consisting of 48 items, the CTI identifies negative cognitions that may hinder the processing of information as it relates to the career decision-making process (Sampson, Peterson, Lenz, Reardon, & Saunders, 1999). "Items were derived using criteria for dysfunctional thoughts, which represented the theoretically defined areas of information processing in career decision making (i.e., self-knowledge, occupational knowledge, decision-making skills, and executive processing)" (Saunders, Peterson, Sampson, & Reardon, 2000, pp. 290–291). Decision-Making Confusion (DMC), Commitment Anxiety (CA), and External Conflict (EC) are the three construct scales included in the CTI and each represents a score related to negative cognitions (Sampson et al., 1998). Using a 4-point Likert-type scale, the CTI focuses on issues such as choosing a program of study or occupation (Sampson et al., 1996a). An item example includes "There are several fields of study or

occupations that fit me, but I can't decide on the best one" (Sampson et al., 1998, p. 130). An individual's inability to successfully make career decisions and solve problems while navigating through the career development process is evidenced by higher scores on the CTI (Saunders et al., 2000).

Relating the Career Thoughts Inventory to the communication, analysis, synthesis, valuing and execution cycle. The structure of the CTI allows us to see how an individual's process through the CASVE cycle is influenced by dysfunctional career thoughts. For example, the DMC scale identifies negative thoughts associated with the communication/analysis/synthesis portion of the cycle, combining self-knowledge with occupational knowledge to form viable options (Reardon, Lenz, Sampson, & Peterson, 2000). The EC relates to valuing, which addresses the question for each option: "What is in it for me?" "What is in it for my significant others?" "What is in it for my cultural group?" (Reardon et al., 2000). The CA scale relates to moving from valuing to execution, which entails implementing a first choice derived in the valuing phase (Reardon et al., 2000).

Career decision-making challenges. Some individuals make career decisions without any difficulty, but not all can (Kleiman et al., 2004). Making career decisions is a complicated endeavor, and much attention is required for the individual to make a solid career decision while going through the career decision-making process (Kleiman et al., 2004). For the college student with ADHD, the decision-making process may be even more difficult as a result of not being able to focus entirely on their career choices (Norwalk et al., 2009). The complication may stem from having to decide between three to five educational/career options and not being able to decide on one (Reardon, Lenz, Sampson, & Peterson, 2000), due to an inability to focus on what their true passions are. However, if the individual ends up narrowing their decision to one option

(Reardon et al., 2000), they could end up feeling sad, frustrated, disappointed, angry, and hopeless as a result of making the decision impulsively. What is less clear is whether the career decision-making process might be more difficult for the college student if the ADHD diagnosis occurred in the childhood years rather than the adult years. More specifically, will the level of dysfunctional career thoughts vary based on the age of diagnosis? The literature regarding the age of ADHD diagnosis and how it could potentially impact or affect career thoughts in educational and career decisions is quite limited. Due to an increase of the ADHD diagnosis among college students each year (Weyandt & DuPaul, 2006), the investigation of the effect that age of diagnosis has on career thoughts in post-adolescence is a worthy endeavor. Therefore, research is needed that helps clarify the specific impact that age at the time of ADHD diagnosis will have on their ability to solve career problems and make well-informed career decisions.

Effects of interventions. A few studies have documented the effects of career interventions on career choice. Koivisto, Vinokur, and Vuori (2011) examined preparedness for career choice and attitude toward career planning using a sample of ninth-grade students ($N = 1,034$). Career choice and students' attitudes toward career planning were evaluated during and after the application of the Towards Working Life Intervention, which consisted of a 1-week workshop (Koivisto et al., 2011). As a result of the intervention, adolescents demonstrated higher levels of positivity toward career planning, and showed enhanced levels of preparedness for career choice (Koivisto et al., 2011). In their qualitative study, Hughey and Lapan (1993) evaluated a high school guidance-language arts career unit in which 25 high school juniors participated at a Midwestern public high school. The competencies highlighted in this guidance-language arts career unit were the following:

(a) exploring possible careers and the world of work; (b) exploring several different careers in areas of interest; (c) improving knowledge of how to prepare for a career; (d) developing some tentative plans after graduation; (e) improving understanding of how abilities are related to career choices; (f) improving understanding of the role of women in today's workforce; (g) understanding opportunity to enter careers traditionally held by members of the opposite sex; (h) improving knowledge about various colleges and what they offer; (i) gaining insight into choosing colleges to prepare for a career; (j) gaining insight into the careers that complement certain majors and into the future of those careers; and (k) having a better understanding of vocational interests, aptitudes, and abilities. (Hughey & Lapan, 1993, p. 97)

These students not only reported being more confident in the career-planning process, but were also more knowledgeable about the career exploration and decision-making processes (Hughey & Lapan, 1993).

Stigma of ADHD

Stigma can have harmful effects in those that are identified as mentally ill (Corrigan, 2004). Making judgments and labeling individuals with a disorder or mental illness can keep these individuals from achieving their life goals and opportunities (Corrigan, 2004). Among the individuals who have the ADHD disorder, negative stigma has been associated with ADHD and continues to affect their daily lives. As a result of negative stigma, rejection is experienced by most individuals with the disorder. In their study of 165 children with ADHD, Hoza et al., (2005) found that "children with ADHD were less socially preferred, had higher social impact, had fewer dyadic friends, and more often fell in the rejected social status category; of concern, 52% of all children with ADHD were of rejected status" (p. 420). Additionally, children with ADHD

demonstrate challenges when providing solutions (Zentall, Cassady, & Javorsky, 2001), and are also ineffective with regulating their emotions (Walcott & Landau, 2004), which may also be reasons for rejection.

Weiner et al. (2012) studied children's attitudes of their own ADHD symptoms in a comparison sample of 9- to 14- year olds ($N = 152$) with and without ADHD. Results indicated that children with ADHD ($M = 12.00$) were more inclined than their non-ADHD peers ($M = 5.53$) to believe that their most problematic behavior was stigmatizing (Weiner et al., 2012). Additionally, there was a negative relationship found between stigmatization for the ADHD disorder, an individual's view of Behavioral Conduct ($r = -.42, p = .01$), and Global Self-Worth ($r = -.45, p = .01$) in the ADHD sample, which meant that the higher their stigma perceptions, the lower their behavioral self-concept and self-esteem (Weiner et al., 2012).

In a sample of 257 undergraduates, Caun, Newman, Morrow, & Pope (2008), examined the social stigma that goes along with having an ADHD diagnosis in adulthood. Specifically, social desirability was measured by evaluating the viewpoints of the participants (Caun et al., 2008). The ANOVAs reported social significance within the subjects used for this study (Caun et al., 2008). For men evaluating women, $F(2, 370) = 6.62, p < .01$, and men evaluating men, $F(2, 370) = 10.85, p < .001$ (Caun et al., 2008). For women evaluating women, $F(2, 136) = 4.48, p < .05$, and women evaluating men, $F(2, 136) = 9.64, p < .001$ (Caun et al., 2008). When comparing individuals with and without ADHD, the results indicated that individuals with ADHD were perceived negatively (Caun et al., 2008).

The child with ADHD has been affected by the stigma of the disorder for a longer period of time than the individual who has been identified with ADHD as an adult. As a result, a child's self-esteem is impacted. Specifically, it is the children who have been treated differently from

their peers who are more likely to experience feelings of inferiority throughout childhood and into the adulthood years (Dooling-Litfin & Rosen, 1997). The child's feelings of inferiority throughout the developmental years, which have resulted from chronic underachievement in school, social problems with peers and teachers, and low self-esteem, could potentially be the underlying factors that contribute to having higher dysfunctional career thoughts in the college years. Now that I have discussed how stigma can impact a child in their earlier stages of development, the significance of this study will be explored next.

Significance of the Study

We do not currently know whether a relationship exists between age of diagnosis, previous participation in career interventions, ADHD stigma, and dysfunctional career thoughts. If a relationship is found between age of diagnosis and dysfunctional career thoughts and an earlier diagnosis or later diagnosis predicted higher dysfunctional thoughts, this would prove to be significant and valuable information for career counselors for several reasons. The higher the dysfunctional career thoughts, the lower the readiness for career decision-making. This lack of readiness could indicate the need for individual case-managed services by career counseling professionals to help address these concerns. According to Sampson et al. (2000), the student with low readiness will need a considerable amount of help from the career center professional when participating in individual case-managed services. Individual case-managed services consist of the following:

- (a) individual counseling: involves practitioner-guided use of resources in an individual office setting, (b) career courses with small group interaction: involves instructor-guided use of resources in a classroom setting with considerable opportunity for interpersonal interaction among individuals and instructors, and (c) long-term group counseling:

involves practitioner-guided use of resources in a group setting with considerable opportunity for sharing information and the development of group cohesion among members. (Sampson et al., 2000, p. 166)

If an earlier or later diagnosis predicted lower dysfunctional career thoughts, then this would result in the use of brief staff-assisted services. A small amount of support is needed when brief staff-assisted services are provided to individuals who are experiencing moderate readiness (Sampson et al., 2000). When providing brief-assisted services, the career service professional typically helps gather resources and collaborates with the client to write down goals on an individual learning plan (Sampson et al., 2000). Brief staff-assisted services consist of the following:

(a) self-directed career decision making: involves practitioner-guided use of self-assessment, information, and instructional resources in a career library, (b) career courses with large group interaction: involve instructor-guided use of resources in a classroom setting with minimal opportunity for interpersonal interaction among students, (c) short-term group counseling: involves practitioner-guided use of resources in a group setting with minimal opportunity for sharing information or for developing group cohesion, and (d) workshops: involve practitioner-guided use of resources in a group setting with little or no opportunity for sharing information or for developing group cohesion among individuals. (Sampson et al., 2000, pp. 164–165)

If a relationship was found between level of ADHD stigma and the occurrence of dysfunctional thoughts, this would prove to be significant to career counselors for several reasons. If higher levels of ADHD stigma predicted lower dysfunctional career thoughts, then

brief-staff assisted services would be recommended. If higher levels of ADHD stigma predicted higher dysfunctional thoughts, then individual-case managed services would be recommended.

If a relationship was found between age of diagnosis, stigma of one's ADHD diagnosis, an individual's level of participation in career interventions in high school, and each predicted the level of dysfunctional career thoughts, this information would prove to be significant for several reasons. If an individual was diagnosed at a later age, has a positive perception of their ADHD diagnosis, they may participate in more career interventions and have fewer dysfunctional thoughts. If an individual was diagnosed at an earlier age, has a negative perception of their ADHD diagnosis, they may participate in less career interventions and have higher dysfunctional thoughts. Having this knowledge would also create important awareness for career services professionals and disability professionals.

Research Questions

In order to address the gap that currently exists in the literature regarding ADHD and career decision-making, the following research questions were posed:

1. To what extent does chronological age of first diagnosis predict the occurrence of dysfunctional career thoughts, as measured by the CTI among college students with ADHD?
2. To what extent does the ADHD Stigma Questionnaire (ASQ) predict the occurrence of dysfunctional career thoughts, measured by the CTI?
3. To what extent does age of diagnosis, the stigma of one's ADHD diagnosis, measured by the ADHD Stigma Questionnaire, and an individual's level of participation in career interventions (i.e., individual counseling, group counseling, career workshop, and career assessment) in high school, measured by the High School Career

Interventions Rating Scale (HSCIRS), predict an individual's dysfunctional career thoughts, measured by the CTI?

Key Assumptions

There were several assumptions related to this study.

1. Career dysfunctional thoughts can be measured with the CTI (Sampson et al., 1996a).
2. DMC, CA, and EC are three different dimensions of dysfunctional career thoughts (Sampson et al., 1996b).
3. Dysfunctional career thoughts can hinder an individual from making an informed and sound career choice (Sampson, 2008).
4. Participation in career interventions can be measured by the HSCIRS.
5. ADHD stigma can be measured by the ASQ.
6. Participants will recall the year of ADHD diagnosis accurately.
7. ADHD diagnosis is a pivotal event in the process of self-understanding and identity formation.
8. Participants will have provided accurate data on the timing of their diagnosis.
9. Participants will respond honestly to all questionnaires.
10. The population from which the sample is drawn and variables of interest are normally distributed.

Operational Definition of Terms

Age of diagnosis. Chronological age (in years) when an individual recalls having an ADHD diagnosis.

Age of onset criterion. DSM-5 states, "several inattentive or hyperactive-impulsive symptoms must be present prior to age 12 years" (APA, 2013, p. 60).

Attention deficit hyperactivity disorder (ADHD). “A persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development” (APA, 2013, p. 61).

Career thoughts. “Outcomes of one’s thinking about assumptions, attitude, behaviors, feelings, plans, and/or strategies related to career problem solving and decision making” (Sampson et al., 1996b, p. 2).

Commitment anxiety. A dimension of dysfunctional career thoughts that reflect “an inability to make a commitment to a specific career choice, accompanied by generalized anxiety about the outcome of the decision-making process, with the anxiety perpetuating the indecision” (Sampson et al., 1996b, p. 2).

Decision-making confusion. A dimension of dysfunctional career thoughts that reflect “an inability to initiate or sustain the decision-making process as a result of disabling emotions and/or a lack of understanding about the decision-making process itself” (Sampson et al., 1996b, p. 2).

Dysfunctional career thoughts. Processing of information that can “impair an individual’s ability to solve career problems and to make career decisions” (Sampson et al., 1996b, p. 2).

External conflict. A dimension of dysfunctional career thoughts that reflect, “an inability to balance the importance of one’s own self-perceptions with the importance of input from significant others, resulting in a reluctance to assume responsibility for decision making” (Sampson et al., 1996b, p. 2).

Limitations

Several limitations were inherent in this study. Participants’ ability to complete the survey honestly and accurately could be questioned, due to an individual’s inclination to use

responses that appear socially desirable or limited knowledge of diagnostic history during childhood. An individual's inability to remember all of the career interventions they participated in while attending high school was also a limitation. Another limitation was that I planned to use offices of disabilities to solicit participants. Some students with ADHD are not registered with these offices, thereby affecting the true representation of this specific population.

Summary of Chapter

The purpose of this chapter was to introduce ADHD and career thoughts, providing a rationale for the proposed study, "The Relationship Between Age of Diagnosis and the Occurrence of Dysfunctional Career Thoughts Among College Students With ADHD." Furthermore, this chapter included the rationale, statement of the problem, purpose of the study CIP, career decision-making, effects of interventions, stigma of ADHD, significance of the study, general and specific research questions, key assumptions, operational definitions of terms, and limitations.

Chapter 2: Literature Review

College students with ADHD present numerous concerns to college counselors, particularly in the area of career development. College students with ADHD may experience a multitude of psychological issues associated with the disorder (Heiligenstein & Keeling, 1995). ADHD is prevalent among college students, even though it was historically considered a childhood disorder (Norwalk et al., 2009). College students may experience difficulties in their personal relationships and in the classroom (Norwalk et al., 2009). As a result, students may not experience academic success or even complete their education. Not only could ADHD potentially affect an individual's college success, it could also negatively impact an individual's abilities to make educational and vocational choices, thereby affecting their cognitions in their career decision-making. College students with ADHD may exhibit negative thoughts and may also be less confident in their decision-making ability in making educational and vocational choices (Norwalk et al., 2009). As a result of these negative cognitions, an individual may experience anxiety and feelings of inadequacy, thereby negatively affecting an individual's belief in their ability to make sound decisions (Peterson et al., 1991). Furthermore, if college students have ADHD, they may be less confident in their ability to engage in career decision-making tasks, thereby affecting their ability to make career choices successfully.

ADHD is "characterized by a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development" (APA, 2013, p. 61). The student with ADHD in high school is likely to experience situations such as getting held back, not completing school, and being assigned to special education programs (Barkley, 2006). Furthermore, for the majority of adolescents with ADHD who attend college, it is more likely they will not finish their degrees, in comparison to their non-ADHD peers (Barkley, Murphy, &

Fischer, 2008). While the numbers continue to increase among college students, approximately 25% of those receiving disability services are diagnosed with ADHD (Wolf, 2001). Despite being diagnosed with ADHD, college students tend to demonstrate adequate levels of intelligence while possessing unique strengths such as creativity and high energy levels (Javorsky & Gussin, 1994). In comparison to the general population with ADHD, college students tend to demonstrate higher levels of academic achievement and are more capable of offsetting their weaknesses due to their abilities (Glutting, Youngstrom, & Watkins, 2005). A unique set of stressors are likely to be experienced by the college student with ADHD in comparison to the adult with ADHD who chooses not to attend college (Glutting et al., 2005). Specifically, college students must learn to successfully transition into the demanding and stressful world of academia (Glutting et al., 2005). In comparison to the high school setting, less structure is provided to students attending colleges and universities, thereby causing more distractions than individuals with ADHD typically face (Norwalk et al., 2009). The amount of distraction, coupled with the rigor of a higher workload and demand for critical thinking (Wolf, 2001) can make this setting more demanding and stressful for students with ADHD. Due to the increasing population of college students with ADHD, there has also been a corresponding increase in research on this population.

Diagnosis of ADHD

The current edition of the DSM-5 (APA, 2013) acknowledged three presentations of ADHD: “Predominantly Hyperactive/Impulsive; Predominantly Inattentive; and Combined” (p. 60). In diagnosing ADHD, Wasserstein (2005) stated that even though some of the symptoms are more applicable and useful in diagnosing children, the criteria for diagnosis is normally applied to children, adolescents, and adults (Wasserstein, 2005). Although the diagnostic criteria

can be applied to any age group across the lifespan (Wasserstein, 2005), the timing of an individual's diagnosis is also an important factor to consider. Additionally, even though the DSM-5 (APA, 2013) defined the age-of-onset criterion (AOC) for ADHD—"several inattentive or hyperactive-impulsive symptoms must be present prior to age 12 years" (p. 60)—an individual can be diagnosed at any point in their development (i.e., childhood, adolescence, and adulthood).

Once thought to occur only in childhood, by 1976 there was a general consensus that children will continue to display symptoms of ADHD as they progress through the lifespan (Resnick, 2005). Although the disorder was once believed to be cured as an individual matured, it is now considered to be pervasive at each stage of development (Resnick, 2005). Hyperactivity has been shown to decline as one reaches adulthood, whereas other symptoms continue to be persistent among this population (Resnick, 2005). According to Wasserstein (2005), although the disorder remains intact in most of the adults who received a childhood diagnosis, research has confirmed that symptoms are known to change throughout one's development. In their study of 19-year-old boys ($n = 128$) diagnosed with ADHD in childhood, Biederman, Mick, and Faraone (2000) reported that symptoms of inattention were more persistent, while symptoms of hyperactivity and impulsivity decreased at a higher rate.

It is crucial to distinguish between symptoms and impairment when making a proper diagnosis (Barkley, 2006). In agreement with the DSM-5 (APA, 2013) statement, according to Barkley (2006), it would be an anomaly if symptoms causing the impairment did not appear by the time the individual started middle school. Although an individual may display valid symptoms of ADHD in their adult years, for those who did not show any evidence of symptoms until the college years, it would be improbable that their symptoms would be a result of the disorder (Barkley, 2006). Therefore, the individual's symptoms must have lasted for quite some

time and also must have started early for the diagnosis to be valid (Barkley, 2006). Additionally, the individual must have been negatively affected by the disorder in some way in their childhood years to qualify as an adult with ADHD (Barkley, 2006). “This does not mean that the individual must have been formally diagnosed in childhood; it only means that sufficient symptoms were present to make it plausible that the condition existed at that stage of development” (Barkley, 2006, p. 430). In summary, although some symptoms must exist before the age of 12 (APA, 2013), even if the impairment is not realized until later in an individual’s life, it would be unusual for the impairment to arise after adolescence. The important question that needs to be further examined is, What is the impact of the ADHD diagnosis at each stage of development (i.e., childhood, adolescence, and adulthood)?

Research on College Students with ADHD

Although college students with ADHD tend to have better compensatory skills than the general population with ADHD, they are more likely to experience academic impairment. Heiligenstein, Guenther, Levy, Savino, and Fulwiler (1999) examined the academic functioning of college students with ADHD ($n = 26$) by comparing them to a control group ($n = 28$). The researchers reported that “college students with ADHD tend to have significantly lower grade point averages (GPAs), were more likely to be on probation, and reported significantly more academic problems than students without the disorder” (Heiligenstein et al., 1999, p. 181), which means that individuals with the disorder are experiencing more problems academically. The ADHD group was significantly different from the control group for GPA ($F = 23.23, p < .001$), Probation status ($F = 8.58, p < .001$), and academic problems ($F = 15.89, p < .001$; Heiligenstein et al., 1999). However, generalizability of the results from this study is limited due to the small

number of participants (Heiligenstein, et al., 1999), which should be considered when making assumptions regarding college students with ADHD.

Lewandowski, Lovett, Coddington, and Gordon (2008) collected self-report ratings regarding perceptions of academic and test-taking issues, and ADHD symptoms from students with ADHD ($n = 38$) and students without ADHD ($n = 496$). The rating scale included 18 items from the DSM-IV (APA, 1994) checklist for ADHD and also the items reflecting academic and test-taking concerns (Lewandowski et al., 2008).

Results indicated that college students with ADHD reported significantly more symptoms ($M = 8.96$) of both ADHD types than did their nondisabled peers, although typical college students endorsed an average of 4.5 out of 18 symptoms, yielding a large effect size difference of $d = 1.26$. (Lewandowski et al., 2008, p. 158)

Lewandowski et al. found that students with ADHD diagnoses reported more academic issues and a higher level of ADHD symptoms. Students with ADHD struggle with taking a substantial amount of time to finish examinations and homework, and internalize the belief that they must work harder to make a decent grade (Lewandowski et al., 2008). For students with ADHD, severe academic issues in college may be attributed to cognitive problems, not knowing how to study properly, and not being able to plan ahead (Weyandt & DuPaul, 2006). Although ADHD and non-ADHD students endorsed symptoms of ADHD, those with ADHD symptoms are experiencing greater deficits in academic endeavors. Lastly, the authors cautioned that care should be taken when interpreting the results of their study because the self-reporting of symptoms and academic complaints are merely perceptions to individuals with ADHD (Lewandowski et al., 2008).

Turnock, Rosen, and Kaminski (1998) found that students ($N = 151$) who reported high symptoms of ADHD demonstrated significantly fewer academic coping behaviors in comparison to the low symptom group of undergraduate students. For ADHD symptom level and coping strategies, a significant main effect was found [$F(7, 135) = 10.47, p < .001, R^2 = .35$; Turnock et al., 1998]. To further illustrate, the high-symptom group of students procrastinated more, were not as disciplined, and did not have the necessary organizational skills to be successful (Turnock et al., 1998). The Survey of Study Habits and Attitudes and Coping Strategies Measure were the two instruments used to assess academic coping (Turnock et al., 1998). Barkley's (1991) 18-item Adult ADHD Symptom Checklist was used to assess whether individuals had high or low symptoms (Turnock et al., 1998). Reporting 10 or more symptoms, meant students met the criteria for the high-symptom group, whereas reporting four or fewer symptoms meant they met the criteria for the low-symptom group (Turnock et al., 1998). On Barkley's 14-item Child ADHD Symptom Checklist (Barkley, 1990), students had to endorse six items (retrospectively) to have met the criteria for the high-symptom group (Turnock et al., 1998). Because symptoms were self-reported in this study, the reliability of the symptoms must be accepted with caution (Turnock et al., 1998). As a result of the ADHD disorder itself, these individuals were not able to implement coping strategies that would help them to become successful in academic settings (Turnock et al., 1998). An explanation for this may be the deficits in their processing abilities as a result of having ADHD.

College students with ADHD are more likely to report feelings of mental or internal restlessness than individuals without ADHD, which may also negatively impact their academic performance. Using the Internal Restlessness Scale, Weyandt et al. (2003) assessed the level of internal restlessness in college students with ($N = 20$) and without ADHD ($N = 20$) who were

attending an institution in the Pacific Northwest. To assess ADHD symptoms, the researchers used the Adult Rating Scale. In comparison to individuals without ADHD, the results of the study suggested that individuals with ADHD continually endorsed significantly higher scores on the Internal Restlessness Scale (Weyandt et al., 2003).

The findings indicated that the ADHD group ($M = 112.25$, $SD = 23.79$) and the control group ($M = 76.00$, $SD = 27.95$) differed significantly, $F(1, 38) = 28.821$, $p < .0001$, with the ADHD group scoring higher on the [Internal Restlessness Scale] than the control group. (Weyandt et al., 2003, p. 384)

The study reported that an association exists between ADHD symptoms and internal restlessness (Weyandt et al., 2003), which means that the ADHD disorder may impact a student's ability to fully comprehend professors during class or ADHD may affect their ability to process information while studying. A limitation to this study was how difficult it would be to generalize the results to most adults with ADHD, due to the small sample size. Another limitation was that individual subtypes (i.e., combined, inattentive, or hyperactivity-impulsive) were not reported. Therefore, it is unclear if internal restlessness would be higher with the combined versus the inattentive diagnosis (Weyandt et al., 2003).

Shaw-Zirt, Popali-Lehane, Chaplin, and Bergman (2005) investigated adjustment, self-esteem, and social skills by comparing 21 students with ADHD to 20 students without ADHD. Both groups of undergraduate students were matched on age, gender, and GPA (Shaw-Zirt et al., 2005). The researchers found significant effects on the Student Adaptation to College Questionnaire score ($F(1, 37) = 38.61$, $p = .001$); Social Self-Esteem Inventory score ($F(1, 37) = 11.01$, $p = .002$); Rosenberg Self-Esteem Scale score ($F(1, 37) = 22.55$, $p = .001$); and Social Performance Survey Schedule score ($F(1, 37) = 13.40$, $p = .001$), which indicated that college

students with ADHD demonstrated having lower levels of adjustment, self-esteem, and social skills in comparison to the matched non-ADHD group. An individual's level of adjustment, self-esteem, and social skills are crucial components to their success in college, and because these characteristics negatively impact individuals with ADHD, interventions such as workshops, mentoring programs, and counseling sessions will need to be implemented (Shaw-Zirt et al., 2005). Although a small sample size is a negative aspect to this study (making it difficult to generalize to all college students with ADHD), another weakness was that the authors did not discuss predictors of adjustment (Shaw-Zirt et al., 2005).

Dooling-Litfin and Rosen (1997) looked at the differences in self-esteem between college students who reported they had been identified as having ADHD in childhood ($n = 86$) and a control group of college students who had not been identified with having the disorder as children ($n = 477$). Their findings indicated that college students who had been identified with ADHD as children had significantly lower scores on self-esteem in comparison to the control group (Dooling-Litfin & Rosen, 1997). The authors explored factors contributing to the lower levels of self-esteem in the ADHD population who had been identified as children. Social skills, achievements, and talents of the individual, prior history of ADHD treatment, current ADHD symptoms, and having a special supportive person during the childhood years were the five contributing factors examined (Dooling-Litfin & Rosen, 1997). The measures in this study were the Rosenberg Self-Esteem Scale, Dating and Assertion Questionnaire (Social Skills), and the Patient's Behavior Checklist for ADHD Adults. Dooling-Litfin and Rosen found that two factors accounted for 22% of the variance in self-esteem scores ($p < .01$), but none of the other factors accounted for a significant amount of the variance. Social skills accounted for 14% of the variance, and current symptomatology accounted for 8%, suggesting that individuals with better

social skills and less current symptomatology had higher self-esteem (Dooling-Litfin & Rosen, 1997). “There is something affecting the self-esteem of people who were identified ADHD as children, and this effect appears stable even among the most successful group of the ADHD population” (Dooling-Litfin & Rosen, 1997, p. 79). Although researchers do not know specifically what affects self-esteem in the individuals who were diagnosed as children, this finding is important to properly assist this population and provide them with the services they need. Social skills and current symptoms of ADHD were predictors of self-esteem in individuals with a childhood history; therefore, multimodal, behavioral, educational interventions, and social-skills training were recommended (Dooling-Litfin & Rosen, 1997). Not only did this study substantiate the literature by providing information regarding the self-esteem of those with a childhood history, it also provided evidence to support that low self-esteem does exist in the college population (Dooling-Litfin & Rosen, 1997).

The relationship between ADHD symptomatology and certain factors associated with college adjustment have also been examined (Norwalk et al., 2009). Using a sample of 263 college students, Norwalk et al. (2009) examined the degree to which self-reported ADHD symptoms were correlated with academic and social adjustment to college (measured by the Student Adaptation to College Questionnaire), career decision-making self-efficacy (measured by the Career Decision-Making Self-Efficacy scale), study skills, and GPA. The researchers administered a brief version of the Conners’ Adult ADHD Rating Scale (Conners, Erhardt, & Epstein, 1999) to measure ADHD symptoms (Norwalk et al., 2009). Inattention/Memory Problems, Hyperactivity/Restlessness, Impulsivity/Emotional Liability, and Problems with Self-Concept are factors included in the Conners’ Adult ADHD Rating Scale used to properly assess symptoms of ADHD (Norwalk et al., 2009). An ADHD Index (or total score) was also included

to determine the existence of ADHD among adults (Norwalk et al., 2009). Norwalk et al. found that individuals who had displayed more ADHD symptoms demonstrated less motivation to succeed in college overall. Specifically, ADHD Index scores were found to be negatively correlated with scores reporting academic adjustment ($r = -.32, p < .001$), social adjustment ($r = -.15, p < .05$), study skills ($r = -.25, p < .001$), and CDSME ($r = -.27, p < .001$), whereas the relationship between ADHD Index score and GPA was not significant ($r = -.10, p = .25$; Norwalk et al., 2009). The higher the ADHD symptoms, the more deficits a student will experience in study skills, academic adjustment, and career decision making, which means that more interventions such as academic and career counseling will need to be undertaken to assist these students with college success before they experience frustration and withdraw (Norwalk et al., 2009). Weaknesses of this study were the small number of participants (i.e., nine) who had actually received a diagnosis of ADHD, and the fact that it was dependent on self-reports of the symptoms (Norwalk et al., 2009).

Not only is the adjustment and performance among college students impacted by ADHD symptoms, they can also have a negative impact on their thought patterns as well. Shaw and Giambra (1993) found that college students with ADHD had more intrusive thoughts than college students without ADHD. To further illustrate, intrusive thoughts are typically the unwanted, recurring images that are impulsive and that may cause interference to an individual's psyche (Clark & Purdon, 1995). Specifically, an individual with ADHD may experience spontaneous intrusive thoughts (Shaw & Giambra, 1993). Not being able to focus or experiencing difficulties attending to certain tasks may be the result of having these spontaneous and intrusive thoughts (Shaw & Giambra, 1993). "In other words, when ADHD individuals are bored, their semantic activation processes seem more random and may cause mental discomfort,

resulting in poor coordination of attentional and inhibitional processes” (Shaw & Giambra, 1993, p. 28). In turn, having intrusive thoughts or any type of dysfunctional thinking may also negatively impact an individual’s ability to make well-informed educational and career decisions.

At the present time, what is known about ADHD among college students is consistent with findings that ADHD can significantly impair students’ academic and social functioning. Although college students tend to have higher cognitive abilities, they are more likely to experience significant problems in higher education settings (DuPaul et al., 2009). These individuals are known to be at a greater risk for not successfully completing college, and many students with ADHD do not demonstrate the necessary scholastic skills needed to be successful (Wolf, 2001). These individuals typically come to college with enduring social, cognitive, and organizational deficiencies, which are inconsistent with being successful in the world of academia (Wolf, 2001).

Age of Onset of ADHD Symptoms

As previously mentioned, the DSM-5 (APA, 2013) has defined a late AOC for ADHD as “several inattentive or hyperactive-impulsive symptoms must be present prior to age 12 years” (p. 60). An earlier version of the DSM IV-TR (APA, 2000), however, defined an earlier AOC for ADHD as “symptoms producing impairment before 7 years of age” (p. 85). Although the AOC has been established, some researchers have criticized the requirement that ADHD symptoms need to start before 7 years of age and favor a later onset criterion, whereas a few have completely rejected an onset altogether. Barkley and Biederman (1997) investigated the AOC for the diagnosis of ADHD from historical, practical, conceptual, and scientific viewpoints. Although empirical evidence has been provided to support the notion that ADHD does in fact

arise during the childhood years, no evidence has been established that supports the precise age of 7 as a diagnostic criterion (Barkley & Biederman, 1997).

Several reasons have been presented in favor of dispensing with a precise AOC, either for symptom onset or for onset of impairment, such as: it is scientifically indefensible, poses unwarranted practical problems for the study of older adolescents and adults, and may be arbitrarily discriminatory. (Barkley & Biederman, 1997, p. 1204)

Because there is evidence that supports ADHD as a childhood-onset disorder, Barkley and Biederman argued that the AOC should either be rejected or expanded to include all of the childhood years.

In a sample of 380 youths ranging from the ages of 4 to 17, Applegate et al. (1997) investigated the validity of the DSM-IV AOC among the three subtypes (i.e., hyperactivity-impulsivity, inattentive, and combined).

Nearly all youths who met symptom criteria for the predominantly hyperactive-impulsive subtype also met the age of onset of impairment criterion, but 18% of youths who met symptom criteria for the combine type, and 43% of youths who met symptom criteria for the predominantly inattentive type, did not manifest impairment before 7 years.

(Applegate et al., 1997, p. 1211)

Statistically significant differences ($F(2,248) = 26.02, p < .0001$) were reported among the three DSM-IV subtypes (Applegate et al., 1997), which indicated that each group had an onset of impairment at different ages. The results of this study provided doubt regarding the DSM-IV AOC and if it should even be considered part of the ADHD diagnosis. A limitation of this study was that because the parents were reporting the onset, they could have reported it incorrectly, which may have negatively impacted the results (Applegate et al., 1997).

In a sample of Brazilian adolescents ranging from ages 12 to 14, Rohde et al. (2000) investigated the AOC for the diagnosis of ADHD. Behavior problems, ADHD criteria (using the DSM-IV) and global functioning were all assessed in the 191 students in the study (Rohde et al., 2000).

Both adolescents with ADHD ($n = 30$) and adolescents who fulfilled all DSM-IV ADHD criteria, except age of onset of impairment criterion (ADHD without age-of-onset, $n = 27$) had significantly higher scores on Attention Problems, Delinquent and Aggressive Behavior scales of the Child Behavior Checklist (CBCL) and lower scores on the Child Global Assessment scale (CGAS) than non-ADHD adolescents ($n = 134$). (Rohde et al., 2000, p. 212)

Attention problems, delinquency, and aggressive behavior scales reported having significant differences between adolescents with ADHD and the non-ADHD group ($Q = 6.12, p < .001$; $Q = 4.47, p < .001$; $Q = 5.71, p < .001$, respectively) and ADHD without age-of-onset youths and the non-ADHD group ($Q = 3.1, p = .005$; $Q = 3.39, p = .002$; $Q = 3.02, .005 < p < .01$, respectively; Rohde et al., 2000). On the Child Global Assessment Scale, differences were reported among adolescents with ADHD and the non-ADHD group ($Q = 4.85, p < .001$) and ADHD without age-of-onset youths and the non-ADHD group ($Q = 3.45, .001 < p < .002$; Rohde et al., 2000). However, because a difference was not found between individuals with ADHD and individuals with ADHD with the exception of the onset criterion, the researchers of this study were in agreement with changing the AOC altogether. Being that the participants in this study were all Brazilian, generalizability to other groups should be done with caution (Rohde et al., 2000). Another limitation was the potential for recall bias, because the parents reported the adolescents' symptoms retrospectively (Rohde et al., 2000).

When symptoms cannot be recollected to meet the diagnostic criterion, or an onset prior to age 7 is not set by diagnosticians, it becomes especially challenging to assess and diagnose adults with ADHD (Faraone et al., 2006). Faraone et al. (2006)

examined the validity of DSM-IV's age at onset and symptom threshold criteria by comparing four groups of adults: 1) full ADHD subjects who met all DSM-IV criteria for childhood-onset ADHD ($n = 127$), 2) late-onset ADHD subjects who met all criteria except age-at-onset criterion ($n = 79$), 3) subjects with subthreshold ADHD (defined as never having met DSM-IV criteria for ADHD and reporting a chronic history of three or more inattentive symptoms or three or more hyperactive-impulsive symptoms) ($n = 41$), and 4) non-ADHD subjects who did not meet any of the above criteria ($n = 123$).

(p. 1721)

Impairment of one's overall functioning, comorbidity with other disorders, and familial transmission were found in individuals with late-onset and in those who met all of the criteria for ADHD, thereby suggesting that the AOC is too rigid and that a late-onset does in fact exist among adults with ADHD (Faraone et al., 2006). The highest percentages of comorbidity were reported among those with major depressive disorder (late-onset 36%, full ADHD 33%), psychoactive substance-use disorder (late-onset 68%, full ADHD 80%), multiple anxiety disorders (late-onset 40%, full ADHD 35%), alcohol abuse (late-onset 30%, full ADHD 42%) and oppositional-defiant disorder (late-onset 32%, full ADHD 38%; Faraone et al., 2006). Functional impairments such having a learning disability (late-onset 15%, full ADHD 23%) and ever being arrested (late-onset 35%, full ADHD 32%) were also reported. Lastly, the prevalence among relatives with ADHD was 41% for the late-onset group, and 37% for the full ADHD group. Not only does a retrospective diagnosis potentially affect the results of this study, the

results cannot be generalized to those who were not referred, because participants in this study were referred for ADHD (Faraone et al., 2006).

AOC has been particularly hard to set for the adult population, especially because their symptoms were not observable at an early age (Hesslinger, van Elst, Mochan, & Ebert, 2003). In a retrospective study with 50 adult patients, Hesslinger et al. (2003) investigated the validity of the AOC. According to what the adults self-reported on the Wender-Utah Rating Scale, they were assigned to either the early-onset or the late-onset group. The adults were identified as the early-onset group if they met the criteria for ADHD between the ages of 6 and 10, whereas those meeting the criteria for ADHD from 11 to 14 and 15 to 18 years of age were identified as the late-onset group (Hesslinger et al., 2003). Of participants, 72% reported early-onset symptoms, whereas only 28% of patients reported late-onset symptoms, thereby suggesting that the AOC may be valid (Hesslinger et al., 2003). A limitation to this study was that the adult patients reported their symptoms retrospectively, which may have negatively impacted accuracy (Hesslinger et al., 2003).

As previously mentioned, even though the DSM-5 (APA, 2013) has defined the AOC at the age of 12 years (p. 60) and the DSM IV-TR (APA, 2000) defined the AOC at 7 years (p. 85), there is research that both challenges and supports these requirements. Furthermore, an individual can be diagnosed at any point in their development (i.e., childhood, adolescence, and adulthood). It is important to distinguish these viewpoints because although an individual may have experienced an onset of symptoms at an earlier stage of development, timing of one's diagnosis can still occur at a later stage of development.

Lifespan Development and ADHD

I will first discuss the childhood years, beginning with the preschool years. Preschool is the terminology that has been established to include children who are in the 2- to 5-year age range (Spira & Fischel, 2005). A valid determination of when certain behaviors qualify as being appropriate for an ADHD diagnosis may be challenging for diagnosticians, especially when children experience abrupt changes in their development between the ages of 2 to 6 (Spira & Fischel, 2005). Children are likely to develop the skills necessary for academic success during the preschool years; therefore, this time period is critical for their development (Daley & Birchwood, 2010). Although the occurrence of problem behaviors during the preschool years can be short-lived, it is likely that early behaviors may serve as evidence when behaviors emerge again as problematic later (Spira & Fischel, 2005).

According to DuPaul, McGoey, Eckert, and VanBrakle (2001), preschool children with ADHD are more likely to experience complications in their interactions with others and in academic settings in comparison to their peers without ADHD. Parents of children in this age group typically referred to them as being continuously restless, having too much energy, and being intrusive (Barkley, 1998). Due to their inattentiveness, impulsivity, and overactive behavior, these individuals are more likely to cause harm to themselves through unexpected accidents (Barkley, 1998). As a result of preschool children with ADHD being insistent and demanding in what they desire and need from others, these behaviors make it especially difficult for caretakers (Barkley, 1998). In their sample of 174 children from birth to second grade, Palfrey, Levine, Walker, and Sullivan (1985) found that approximately 40% of these children, by the age of 4, had demonstrated adversities due to inattention that were concerning to their parents and teachers. Using a sample of 3 and 5 year old children ($N = 94$), DuPaul et al. (2001)

investigated the overall functioning of preschool children with ADHD in comparison to their non-ADHD peers. The researchers specifically looked at how well the preschool students functioned in their academic and home life. The children's level of functioning was measured by parent and teacher ratings and through observations. The Preschool and Kindergarten Behavior Scale and the ADHD Rating Scale-IV were the scales used to measure children's functioning (DuPaul et al., 2001). The parent's level of stress was evaluated via the Parenting Stress Index (DuPaul et al., 2001). For the parent and teacher rating scales, the researchers used the Preschool and Kindergarten Behavior Scale Problem Behavior standard score $F(1, 71) = 63.5, p < .001$, Preschool and Kindergarten Behavior Scales Social Skills standard score $F(1, 71) = 99.4, p < .001$, ADHD Inattention score $F(1, 71) = 117.3, p < .001$, and ADHD Hyperactivity-Impulsivity score $F(1, 71) = 192.1, p < .001$. Results indicated that children with ADHD had more issues with their behavior and social skills. Having behavior and social issues meant that children with ADHD were more belligerent when asked to complete tasks by their parents, displayed more unsuitable behaviors overall, and were likely to be more socially and academically inept than their non-ADHD peers (DuPaul et al., 2001). For the parent stress rating scale, the Parenting Stress Index total score $F(1, 76) = 73.9, p < .001$ indicated that parents of children with ADHD demonstrated greater stress as a result of having to deal with their demanding and uncontrollable children. A limitation of this study was that because this population had a high rate of comorbidity, one cannot infer that group differences were solely due to ADHD. Another limitation was generalizability to diverse groups, because the sample was mostly White and middle-class (DuPaul et al., 2001).

As children with ADHD begin their educational journey, they find themselves being stressed by the fact that they are mandated to attend school (Barkley, 1998). To be academically

successful, these children are expected to listen, follow the rules, be respectful and supportive of others, and be socially tactful when engaging in activities in and outside the classroom (Barkley, 1998). Additionally, cognitive skills are needed to demonstrate proficiency and progress successfully through the curriculum (Barkley, 1998). It is typically at this stage of development that parents are faced with the decision to make proper accommodations for their children, such as repeating kindergarten, due to developmental setbacks and/or academic deficiencies (Barkley, 1998).

First graders are given homework, which may add stress and conflict to a child's home life as demands increase at school (Barkley, 1998). In a qualitative study of families with children who had been diagnosed with ADHD, Firmin and Phillips (2009) interviewed 17 American families who were participating in the national support group, Children and Adults with Attention Deficit Disorder. One mother was able to identify her 12-year-old child's challenges and deficiencies as far back as kindergarten (Firmin & Phillips, 2009). She started to observe his processing ability and concentration while completing his homework:

I can see what he struggles with because it's hard for him to concentrate. First of all, he can't read if there is any background noise. A lot of people can sit and read and tune that out, he cannot do that. ... He has to have complete quiet. The other thing, just reading, he cannot actually read something, like if you know how you get things that you need to read and then put them in order, 1, 2, 3 ... he can't do that. He cannot break things into little sections and say that's the first thing that happened, that's the second thing, so he needs a lot of help at home with homework when he needs to do that kind of work.

(Firmin & Phillips, 2009, p. 1162)

Most parents were extremely perceptive of the symptomatology exhibited by their children (Firmin & Phillips, 2009). In response to a question, one mother replied,

What signs of ADHD did I see? ... Moody, low self-esteem, impetuous, little attention span except when watching the television, needing something in his hand to play with in order to concentrate, inability to concentrate in school, easily drawn away to an activity or noise in background or around him, frustration with his homework, forgetting directions that were given to him which included more than two tasks, I could go on and on. (Firmin & Phillips, 2009, p. 1162)

“Children with ADHD may have a host of associated problems, including academic, behavioral, family, emotional, social, and developmental/medical difficulties, which are present to a greater degree in children with ADHD than in other children” (Robin, 1998, p. 18). When these problems are not present, the diagnosis is not excluded, especially because other factors are considered to be more prevalent (Robin, 1998). As children progress into the adolescent stage of development, not only do they experience more of the aforementioned problems, but they are required to perform at higher levels (Robin, 1998).

As the adolescent enters middle and high school, the expectations rise again; therefore these individuals are more likely to experience issues with learning in their new environment (Robin, 1998). Students are required to comprehend and retain more information, and work autonomously on lengthy assignments more often than they did while attending elementary school (Robin, 1998). Submitting assignments and finishing their homework in a timely manner becomes a daunting task for the student with ADHD, especially when their organizational skills have been negatively impacted by the disorder (Robin, 1998). These students may also realize

that they have learning disabilities in certain subject areas, along with having ADHD (Robin, 1998).

Conduct issues, such as oppositional behavior, are known to coexist with ADHD among the adolescent population; as a result, society largely views these behavior issues as being attributed to their adversities (Robin, 1998). Talking back, being stubborn and belligerent, getting easily bothered, and instigating conflicts with siblings are facets of conduct issues (Robin, 1998). These individuals are more likely to experience a higher level of conflict in their family system, which is typically a result of their combative behaviors and academic problems at school (Robin, 1998). Although some forms of conflict are likely to arise in an adolescent's home life during puberty, conflicts and disputes are likely to be more severe when living with an adolescent who has ADHD (Robin, 1998). As a result of ADHD symptoms in the adolescent, not paying attention, disruption of conversation, having opposing views, and displaying poor eye contact are some of the communication barriers that may contribute to conflict situations in the household (Robin 1998).

Feelings of inferiority, anxiety, and sadness are a few of the issues experienced by adolescents with ADHD (Robin, 1998). Sadness and low self-esteem have an effect on life's disappointments that adolescents may have experienced as children (Robin, 1998). Adolescents with ADHD must also address peer and dating relationships, figuring who they are as individuals, and puberty (Barkley, 1998).

Adults with ADHD are also impacted by the diagnosis in their personal, academic, and occupational functions. Issues with social skills have been known to be especially distressing and aggravating in their relationships (Wasserstein et al., 2001). As a result of communication issues,

adults with ADHD are likely to experience severe outbursts of anger that may result in violence and several marriages (Wasserstein et al., 2001).

Adults experience even more obstacles as they enter postsecondary school and employment settings (Wasserstein et al., 2001). The ability to plan ahead and organize becomes especially difficult for the individual who is attending college for the first time, where the setting is now highly unstructured in comparison to high school (Wasserstein et al., 2001). Even though adults with ADHD may be stimulated and inspired by certain tasks and responsibilities, these individuals may still wait until the last minute or even fail to remember the work they were supposed to be doing (Resnick, 2005). Despite being capable and bright, college students with ADHD have been known to struggle in academia in comparison to their counterparts without ADHD (Ramsey, 2010).

Although there is a parallel between adults and children with ADHD in that they both encounter obstacles in their academic endeavors, adults who were diagnosed with ADHD in adulthood are more likely to attend college and have higher levels of intellectual functioning (Barkley et al., 2008). In addition, in comparison to children with ADHD who are tracked until adulthood, the adults who were diagnosed with ADHD in adulthood are less likely to be diagnosed with learning disabilities (Barkley et al., 2008). The adult diagnosed with ADHD in adulthood is known to have more adaptive levels of functioning; these individuals will typically refer themselves for diagnosis, thereby demonstrating higher levels of self-awareness and intellect (Barkley et al., 2008).

As adults with ADHD begin full-time work that requires more complex skills, these individuals may experience more obstacles on the job as they begin to work independently and commit to more professional development activities such as workshops (Barkley, 1998). Nadeau

(1995) stated that “manifestations of attention deficits in adults are most evident in the workplace environment” (p. 308). Once they are hired, adults with ADHD are normally disappointing to their employers because of their inability to work efficiently and autonomously; they are more likely to have poor relationships with their bosses and coworkers (Barkley, 1998). Typical issues in employment settings for the adult with ADHD may involve constant tardiness to their work site and incapability in tending to important due dates in allotted time frames (Wasserstein et al., 2001).

As individuals with ADHD progress through the lifespan, they continue to have observable deficits as a result of the disorder (Barkley, 2006). “Because ADHD is defined by impairment, there should be markers (some sort of paper trail) along the way that reflect impairment” (Barkley, 2006, p. 431). However, it may be that an individual does not display any observable deficiencies due to the structure that had been provided during their earlier years (Barkley, 2006). Not only are individuals able to hide their symptoms as a result of the structure that was provided in the earlier years, they may also find that they are able to successfully navigate through their formal schooling years during childhood and even adolescence as a result of their higher aptitude levels (Barkley, 2006). Therefore, having observable signs of ADHD is not related to an individual’s capabilities or intellectual functioning (Barkley, 2006). An individual may not have attention problems, but have an IQ that is below average, whereas an individual with ADHD may be exceptionally bright (Barkley, 2006). To further elaborate, although an exceptionally bright individual may experience having fewer academic deficiencies or issues, a higher IQ does not act as a safeguard for the occurrence of ADHD symptoms (Barkley, 2006).

As a prevalent disorder, ADHD may be the reason individuals experience a myriad of problems, specifically in their work, social, and educational endeavors (Barkley, 2006). Problems such as being dismissed, not performing to academic potential, and issues with dating or marriage relationships are a few of the negative ramifications of the disorder (Barkley, 2006). Confusion and frustration may be experienced by individuals who have not been formally diagnosed, especially if they continue to have recurring issues in their daily lives. Not only will individuals who suffer from ADHD find that they experience issues in their social and occupational settings (Nadeau, 2005), they are also likely to experience issues in academic settings, specifically when making educational and career decisions as college students (Norwalk et al., 2009). Additionally, their ability to select a major or career decision may be impacted by the timing of their ADHD diagnosis.

Erikson's Theory of Psychosocial Development Applied to Timing of ADHD Diagnosis

Erikson's eight-stage theory of psychosocial development is one of the most notable and distinguished theories in the life-span development field (Hoyer & Roodin, 2003). According to Erikson, an individual may experience personality shifts in an anticipated manner (as cited in Hoyer & Roodin, 2003). The progression of stages is known to be significant in its own time (Cavanaugh & Blanchard-Fields, 2006). Erikson asserted,

The human personality develops in stages predetermined in the growing person's readiness to be driven toward, to be aware of, and to interact with a widening social radius; and society, in principle, tends to be constituted so as to meet and invite this succession of potentialities for interaction and attempts to safeguard and encourage the proper rate and the proper sequence of their unfolding. (1963, as cited in Hoyer & Roodin, 2003, p. 270)

Although it is more likely that a normally functioning individual would progress through each of the stages of development with few problems as they mature through the life cycle, an individual with ADHD may experience many problems in their developmental progression. Next, I present an overview of these stages, and a discussion of what may occur developmentally from infancy through childhood and adulthood in an individual who has ADHD. Furthermore, the approximate time span for each stage will be provided as a way to indicate the timing of one's ADHD diagnosis.

An overview of these eight stages and the approximate time span associated with each are as follows: 1) Trust versus Mistrust (birth to 18 months); 2) Autonomy versus Shame and Doubt (18 months to 3 years); 3) Initiative versus Guilt (3 to 6 years); 4) Industry versus Inferiority (6 to 12 years); 5) Identity versus Identity Confusion (12 to 20 years); 6) Intimacy versus Isolation (20 to 35 years); 7) Generativity versus Stagnation (35 years to retirement); and 8) Integrity versus Despair (retirement years). (Hamachek, 1990, pp. 677–678)

Erickson contended that trust is fundamental to having a well-balanced personality (as cited in Cavanaugh & Blanchard-Fields, 2006). *Trust versus mistrust*, the first stage, is the struggle a baby experiences as they attempt to establish trust in an environment that is unknown to them (Cavanaugh & Blanchard-Fields, 2006).

Autonomy versus shame and doubt, the second stage, emulates a child's knowledge of being able to manage and control their own behaviors (Cavanaugh & Blanchard-Fields, 2006). This underlying knowledge allows them to shift from being completely unaware of their surroundings to being able to purposefully act in their new environment. Because the child's tendency is to refrain from being completely in charge of their behaviors, their independence is

jeopardized, and they are more likely to feel they want to revert to the first stage (Cavanaugh & Blanchard-Fields, 2006). As previously mentioned, children aged 2 through 5 are recognized as “preschoolers” (Spira & Fischel, 2005), and the preschool period begins to arise toward the end of this stage. Furthermore, toward the end of this stage, developmental issues become visible as they relate to having an ADHD diagnosis.

It is during the *initiative versus guilt* stage, that the child internalizes a sense of meaning as they engage in play activities (Kropf & Greene, 2009). However, if the child begins to feel defeated, this may become a hindrance to their emerging cognitions (Erikson, 1977). The preschool child with ADHD is negatively impacted by hyperactive, inattentive, and impulsive behaviors that may affect their ability to develop a sense of meaning from their surroundings. As previously mentioned, the preschool children are likely to experience deficiencies, particularly in the behavioral, academic, and social domains, thereby causing early signs of dysfunction that may persist for years throughout their lifespan. Because it is especially important that a preschool student take initiative by taking on roles through play, a preschool child may constantly act as if driven by a motor, which may have an effect on their ability to establish meaning at this stage.

Using a sample of 4 to 5 year old preschool children with ADHD, Alessandri (1992) explored levels of attention, play, and nonplay behavior. The sample consisted of 40 participants who were videotaped during a 6-week timeframe (Alessandri, 1992). The author evaluated children’s play and nonplay behaviors. In comparison to the children without ADHD in the study, preschool children with ADHD demonstrated difficulties with attention while engaging in play behaviors. “There was a significant main effect, $F(1, 38) = 8.75, p < .01$, such that collapsed across all play categories, indicating that children with ADHD engaged in less overall play than

children without ADHD” (Alessandri, 1992, p. 295). Attention problems were especially apparent among these children, because they were more likely to focus on other activities and engage in less play. The researcher also observed developmental delays and lower levels of maturity in children with ADHD in comparison to the control group (Alessandri, 1992). The preschool children with ADHD also took hard hits at objects and made more physical contact with toys (Alessandri, 1992). The author cautioned that generalizability to other groups should be done carefully because the participants in this study were primarily low-income, minority children (Alessandri, 1992).

The fourth stage, *industry versus inferiority*, is focused on children’s ability to communicate effectively with other children and the need to work hard and succeed in their endeavors (Cavanaugh & Blanchard-Fields, 2006). A lack of success in their pursuits may result in feelings of inadequacy (Cavanaugh & Blanchard-Fields, 2006). During this stage, the individual is in their formal education years (i.e., elementary and middle school years). Although it is important for children to be accepted by their peers and also feel they are accomplishing their life pursuits at this stage of development, the individual with ADHD may be negatively impacted in several ways by their diagnosis, causing them to feel unsuccessful in their social and academic environments. At this stage, a child with ADHD may become more defiant of their teachers and parents, and misbehave in their peer groups, resulting in strained social relationships.

Cognitive difficulties can be observed when there are higher levels of impulsivity and when an individual acts as if they are driven by a motor (Ramsey, 2010). In the case of children who primarily display a high level of inattention, it is likely that their symptoms may go unnoticed for many years; however, hyperactive and impulsive children are likely to be noticed

more due to their overt symptoms (Ramsey, 2010). “Inattentive children may be described as ‘spacey,’ ‘daydreamers,’ ‘in another world’ or ‘zoning out’ because they are distracted from a task by competing stimuli” (Ramsey, 2010, p. 15). Additionally, a child may make unintentional and careless mistakes, lose track of time, and require that instructions be read back to them more than once. In turn, the child may be portrayed as not performing up to par or to their true capabilities (Ramsey, 2010).

Identity versus identity confusion, the fifth stage in Erikson’s theory, is about how an individual evolves despite having an excess number of choices (Cavanaugh & Blanchard-Fields, 2006). It is about who the individual aspires to become as they mature. The adolescent may find it challenging to choose who they would like to become as they begin to choose from their distinct identities. It may be that an adolescent hesitates to choose among the countless possibilities, thereby resulting in identity confusion (Cavanaugh & Blanchard-Fields, 2006).

In the case of the adolescent with ADHD who is making an important life decision and has to now choose from a myriad of choices, it is likely for them to experience confusion as they attempt to identify who they really are. This identity crisis becomes a burden to the adolescent with ADHD as they encounter significant problems in multiple settings (i.e., home and school). Although the adolescent is impacted by the diagnosis in ways similar to a child, duties and responsibilities have increased for the adolescent in their home and school environments by this stage of development (Robin, 1998). Therefore, the adolescent may find that their problems have significantly increased, thereby causing them to experience sadness, anxiety, and feelings of inferiority (Robin, 1998).

The sixth developmental stage, *intimacy versus isolation*, relates to an individual’s significant relationships during the young adult years (Kropf & Greene, 2009). One’s ability to

successfully engage in relationships with others is known to occur during specific age ranges (20–35) at this stage (Kropf & Greene, 2009). According to Erikson (1963), Freud highlighted two important concepts that are crucial to a meaningful life—”to love and to work” (p. 265). In the individual who has ADHD, the ability to develop intimate connections with others is impaired, and therefore may affect their ability to sustain relationships. As a result of having problems engaging in intimate relationships, isolation may be more likely to occur.

Adults with ADHD may also experience difficulties in their family relationships. Using a sample of 33 married adults with ADHD, Eakin et al. (2004) examined marital adjustment (measured by the Dyadic Adjustment Scale) and family functioning (measured by the Family Assessment Device). The ADHD sample was compared to 26 non-ADHD married couples (Eakin et al., 2004). The overall marital adjustment of adults with ADHD was lower ($M = 99.21$, $SD = 16.95$) than the overall marital adjustment for the adults without ADHD ($M = 113.23$, $SD = 13.31$), which indicated that married adults with ADHD had worse marital adjustment and higher levels of family dysfunction than adults without ADHD (Eakin et al., 2004). It may be that lack of organization, inattentiveness, impulsivity, and communication barriers were the causes of dysfunction in these relationships. Although the sample size was small and therefore should be interpreted with caution, a positive aspect of this study was that insight was provided on relationships of the ADHD participants due to the comprehensive assessments provided (Eakin et al., 2004).

For the adult with ADHD, interpersonal conflicts are likely to be short lived and enraged (Resnick, 2005). Furthermore, an adult with ADHD may be more likely to experience impairment in their social and emotional competence, thereby having a negative effect on their interpersonal relationships (Friedman et al., 2003). Friedman et al. (2003) evaluated the social

and emotional competence of 31 adults with ADHD and 32 non-ADHD adults. Researchers used the Social Skills Inventory and the Toronto Alexithymia Scale-20 to measure social and emotional competence. Films that represented emotional interactions were used to examine an individual's emotional reaction (Friedman et al., 2003). In comparison to the control group, adults with ADHD perceived themselves as more socially inept (Friedman et al., 2003). Adults with ADHD perceived themselves as less competent on the Social Skills Inventory Social Control Scale [$F(1, 61) = 13.40, p < .001$], Social Expressivity Scale [$F(1, 61) = 4.17, p = .05$] and emotional Control Scale [$F(1, 61) = 3.16, p = .08$] (Friedman et al., 2003). Higher levels of alexithymia were demonstrated in the adults with ADHD in comparison to those without the disorder [$F(1, 61) = 15.68, p < .001$] (Friedman et al., 2003). Adults with ADHD were less likely to use words that were associated with emotion.

In the free-recall condition, although adults with ADHD used significantly more words than did the controls to describe the scenes depicted, $F(1, 61) = 6.43, p = .014$, they used proportionately fewer affect-related words, $F(1, 61) = 4.60, p = .036$. (Friedman et al., 2003, p. 54)

Also, adults with ADHD were more cognizant of their social struggles in contrast to their emotional issues (Friedman et al., 2003). Based on the results of this study, it is apparent that adults with ADHD are less socially and emotionally sensitive, thereby negatively impacting the interactions these individuals have with others. Given that this study included a small sample of well-educated and high-functioning individuals with ADHD, generalizing the results to the majority of adults with ADHD should be done with caution (Friedman et al., 2003).

Generativity versus stagnation, which occurs during middle age, relates to taking a personal interest in the next generation (Cavanaugh & Blanchard-Fields, 2006). At this stage, the

individual is in conflict with whether they should preserve society from extinction (i.e., generativity) or continue to think about only themselves (i.e., stagnation; Cavanaugh & Blanchard-Fields, 2006). The basic premise of the generativity versus stagnation stage is that an individual may be selfish, and as a result be incapable of showing concern for the human race, or they are altruistic by nature, thereby demonstrating the potential to show concern for others (Kropf & Greene, 2009).

During the *integrity versus despair* stage, an individual takes the time to reflect on life experiences (Kropf & Greene, 2009). When an individual has lived the life they expected, and is not markedly remorseful over their past, they are said to have achieved integrity (Kropf & Greene, 2009). An individual has also achieved integrity when they have successfully addressed life's trials (Kropf & Greene, 2009). Those individuals who want to repeat life again and are terrified of dying are said to be in despair (Kropf & Greene, 2009).

Development and Diagnosis

Considering the developmental challenges from infancy through childhood and adulthood in the individual who has ADHD, researchers should consider whether being identified with ADHD (and therefore potentially supported) at different levels of development makes a difference. ADHD causes setbacks in an individual's growth process (Miranda, Soriano, Fernandez, & Melia, 2008). In the initial stages of research, there was speculation that ADHD would fade as an individual grew older (Ingram et al., 1999). Mendelson, Johnson, and Stewart (1971) stated,

Our findings suggest that hyperactive children are generally behaving in a more normal way by the time they enter their teens. They are less active, distractible, impulsive, and

excitable than they were in grade school, though these symptoms are still troublesome. (p. 277).

Earlier research is consistent with some later research regarding the continuation of children's symptoms as they reach adolescence. According to Young and Amarasinghe (2010), although the clinical picture begins to shift into adolescence/middle school, it has been estimated that about 50% of children will continue to display symptoms. Although hyperactivity does continue during this stage, it is seen as much less conspicuous (Young & Amarasinghe, 2010). It becomes even more challenging to detect ADHD in the adult, especially because their symptoms appear to be nonexistent at this stage (Ingram et al., 1999). Researchers believe ADHD will manifest differently in children, adolescents, and adults (Ingram et al., 1999). The severity of ADHD symptoms decline as an individual progresses through each stage of development (Ingram et al., 1999). As a result of the changing clinical picture across the lifespan, this can potentially impact who is identified, labeled, and potentially supported as an individual with ADHD. Due to the severity of symptoms, there are currently more children than adolescents and adults being labeled with the ADHD diagnosis and also being identified with more psychological problems.

Hart, Lahey, Loeber, Applegate, and Frick (1995) examined the developmental changes in a sample of 106 boys (aged 7 to 12) who were clinically referred for having met the ADHD diagnostic criteria. Using a structured interview format, the boys were evaluated during the course of 4 years. Although symptoms of inattention continued to be displayed among the boys as they got older, there was a decrease in hyperactivity-impulsivity. The mean numbers of hyperactivity-impulsivity in Year 1 ($M = 6.8$), 2 ($M = 6.1$), 3 ($M = 6.1$), and 4 ($M = 5.7$) indicated that there was a decrease in hyperactivity-impulsivity symptoms during the course of 4 years.

“Boys who still met criteria for ADHD in Years 3 and 4 were significantly younger, more hyperactive-impulsive, and more likely to exhibit conduct disorder in Year 1 than boys who no longer met criteria in Years 3 and 4” (Hart et al., 1995, p. 729). A limitation is that because the children were referred, a referral bias may have resulted with these children having more severe symptoms. It may be that the individuals with less severity would display different rates of symptoms over a period of time (Hart et al., 1995). Another limitation was that the study included all boys, therefore, there would be no way to identify or even compare ADHD’s developmental course in girls (Hart et al., 1995).

In a sample of 62 children (aged 11–13), Hanc and Brezezinska (2009) examined the association between the intensity of ADHD symptoms and the child’s level of competence. The Feeling of Competence Questionnaire and the Symptoms of ADHD Questionnaire were the two assessments used for this study (Hanc & Brezezinska, 2009). Two groups were selected: Group 1 displayed lower levels of intensity and Group 2 displayed higher levels of intensity (Hanc & Brezezinska, 2009). The mean score for the Feelings of Competence Questionnaire general score was $M = 86.72$ for the lower level of ADHD symptoms intensity group, whereas the mean score for the higher level of ADHD symptoms intensity group was $M = 64.06$; scores indicated higher levels of symptom intensity in children identified with lower feelings of competence (Hanc & Brezezinska, 2009). Furthermore, lower levels of competence were found in the group that displayed a higher level of intensity (i.e., Group 2), suggesting that an association exists between the severity of symptoms and a child’s competence levels (Hanc & Brezezinska, 2009). To summarize, having higher levels of hyperactivity, impulsivity, and inattention can negatively impact an individual’s feeling of competence, which may significantly affect their overall quality of life (Hanc & Brezezinska, 2009). A limitation of this study was that because the sample was

voluntary, there was no evidence of the causes of ADHD; therefore the intensity of symptoms should be referenced as a potential cause when interpreting the results (Hanc & Brezezinska, 2009).

Using a sample of 72 children, Miranda et al. (2008) explored the viewpoints of teachers and parents on psychological problems, and the effects of these problems on ADHD symptoms. The authors also examined the effect age and a learning disability had on psychological issues (Miranda et al., 2008). The Conners' Parent Rating Scale-Revised, Conners' Teacher Rating Scale-Revised, and Strengths and Difficulties Questionnaire were the three assessments used in this study. Teachers and parents demonstrated a high level of agreement in rating behaviors such as hyperactivity (85 %), restless-impulsivity (90%), and conduct problems (43%), although the level of agreement was found to be much lower in their ratings of emotional symptoms (11%; Miranda et al., 2008).

The most predictive variables, rated by the parents, were cognitive/inattention ($B = 0.587$, $p < .01$), emotional lability ($B = 0.404$, $p < .01$), and conduct problems ($B = -0.213$, $p < .05$), whereas the most predictive variables, rated by the teachers, were cognitive/inattention ($B = 0.586$, $p < .01$), emotional lability ($B = .493$, $p < .01$), and conduct problems ($B = -0.324$, $p < .01$), which indicated that inattention, and behavioral and emotional issues were all contributing factors to the intensity of ADHD symptoms (Miranda et al., 2008). Higher ratings were given to the older students by teachers on cognitive/inattention [$F(1,68) = 7.556$; $p < .05$], restless-impulsive [$F(1, 68) = 7.471$; $p < .05$], and the Conners' ADHD Index [$F(1, 68) = 9.663$; $p < .01$], which indicated that teachers considered the older children (aged 10–14) with ADHD as having more psychological problems than younger children (aged 6–9) with ADHD (Miranda et al., 2008). Although teachers revealed no significant effects for learning disabilities

parents revealed higher scores for cognitive/inattention ($M = 75.48$) and on the Connors' ADHD Index ($M = 73.7$) in the younger children with both ADHD and learning disabilities than in older children with ADHD and learning disabilities ($M = 70.92$, $M = 71.69$, respectively), which indicated that the younger children who had both ADHD and a learning disability had more psychological issues (Miranda et al., 2008). Although a positive aspect to this study was the use of multiple ratings because they provided additional information about the children, the ratings themselves posed a limitation due to potential bias and subjectivity of responses (Miranda et al., 2008).

Barker, Oliver, and Maughan (2010) investigated the coexisting problems of youths (aged 4–13) based on their developmental course (or trajectory) as it relates to conduct problems. Specifically, researchers identified three groups of youths as an early onset persistent (EOP), a childhood-limited, and an adolescent-onset group (Barker et al., 2010). Although those with early onset were known to display deficits such as hyperactivity in early childhood that would continue to cause issues through the lifespan (Odgers et al., 2007, 2008; Raine et al., 2005), those identified with a childhood-limited trajectory demonstrated problems associated with conduct early in life, but those problems lessened to much lower levels once they reached the adolescent stage of development (Barker & Maughan, 2009). Additionally, those identified with adolescent onset had conduct issues arise during the adolescent stage of development (Barker et al., 2010). Results indicated that the individuals in the EOP group were more likely to be diagnosed with disorders such as anxiety, depression, conduct, and ADHD (Barker et al., 2010), which indicated that the EOP group demonstrated having more coexisting issues than the other groups. Boys in the EOP group reported 5.15% for conduct, 8.44% for anxiety, 1.95% for depression, and for 14.01% ADHD which was higher than what the adolescent-onset (.69%, 3.65%, 1.00%, 4.20%)

and childhood-limited (.66%, 4.26%, .93%, 3.79) groups reported, respectively (Barker et al., 2010). Girls in the EOP group reported 2.19% for conduct, 7.58% for anxiety, .83% for depression, and 2.43% for ADHD, which was also higher than what the adolescent-onset (.01%, 3.96%, .72%, 1.15%) and childhood-limited (.01%, 3.61%, .46%, 1.25%) groups reported respectively (Barker et al., 2010). Due to the low numbers of ethnic minorities included in this study, a limitation was generalizability (Barker et al., 2010).

Theoretical Basis and Rationale for the Career Thoughts Inventory

CIP provides the theoretical background, and also influenced the formation of each item for the CTI (Gilbert, 1997; Peterson et al., 1991; Peterson et al., 1996). “CIP theory specifies that effective career problem solving and decision making requires the effective processing of information in the domains of self-knowledge, occupational knowledge, decision-making skills, and executive processing” (Sampson et al., 1998, p. 118). Self-knowledge relates to how well an individual can conceptualize their values, interests, and skills. Occupational knowledge, however, refers to how well an individual can conceptualize their knowledge of the multitude of occupations available to them. Components such as communication, analysis, synthesis, valuing, and execution are a part of the decision-making process and are important in making sound decisions (Sampson et al., 1998; see Figure 2).

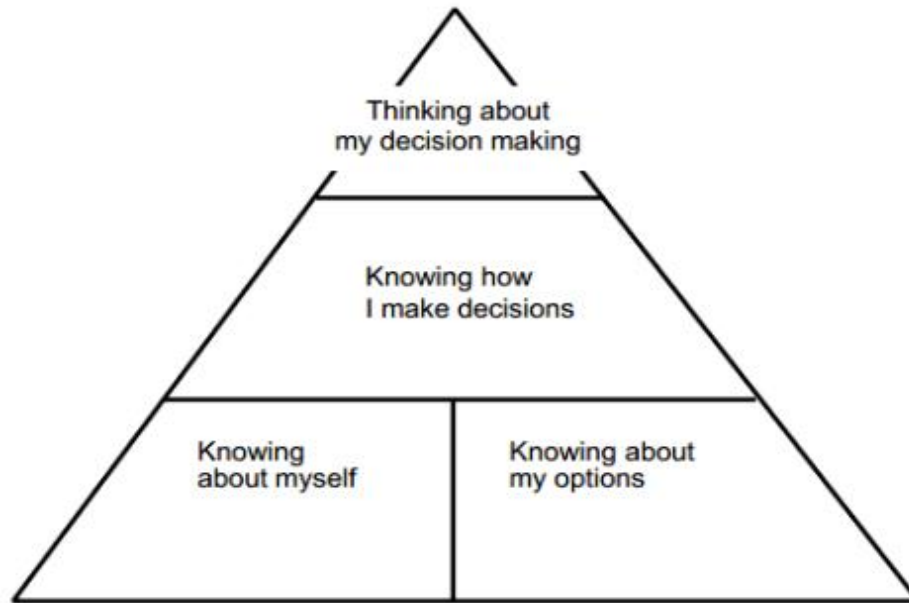


Figure 2. The decision-making process.

During the communication phase, individuals become cognizant of a discrepancy (or gap) that exists as a result of their own negativity or from the messages (positive and negative) they receive from important people in their life (Sampson et al., 1998). During the analysis phase, an individual will enhance what they know about themselves (i.e., self-knowledge) and what they know about the multitude of options available to them (i.e., option knowledge; Reardon et al., 2000). Options can include choosing between what leisure activities, occupations, and programs of study to pursue, as well as choosing the location where an individual would prefer to live (Reardon et al., 2000).

Another crucial component of the decision-making process is the synthesis phase (Reardon et al., 2000). Two disparate processes are integral components of the synthesis phase: synthesis elaboration (i.e., the expansion of options) and synthesis crystallization (i.e., the narrowing of options). For the individual, the goal is to reduce their options (preferably to 3–5; Reardon et al., 2000). At this point in the decision-making process, the individual has expanded their options and then narrowed them according to their values, interests, and skills. For example,

if an individual has expressed an interest and skill in working with people, and values helping others and making money, they may have expanded their options to include a total of seven jobs in both the business and education fields. The narrowing process of the three options could then be solidified as a result of further exploring their values. Although the individual may know they would like to work with people, they may highly value education settings because that would allow them to make a difference in the lives of others.

Valuing is the next phase of the career development process (Reardon et al., 2000). During this phase, the individual wavers between the costs and benefits of each of the options remaining, while also considering the opinions of the important people in their lives (Sampson et al., 1998). Other important factors to consider when making this decision are their cultural group and society as a whole (Sampson et al., 1998). As an individual gets closer to deciding on their choice, execution becomes the next and final phase of the career development process (Reardon et al., 2000). During this phase, an individual solidifies their choice and begins to implement certain activities to fulfill their life goal (Reardon et al., 2000). Executive processing (i.e., metacognitions) goes through all of the important aspects of the decision-making skills domain (Sampson et al., 1998). Metacognitions are the thoughts that are monitored as an individual engages in the decision-making process (Sampson et al., 1998).

An individual's ability to make well-established and sound career decisions can be negatively impacted by having dysfunctional thoughts while navigating through each of the stages (Sampson et al., 1999). Furthermore, as an individual is choosing an occupation or program of study, CIP theory posits their thoughts and emotional state are intertwined (Meyer-Griffith, Reardon, & Hartley, 2009). Emotions may be positive or negative in that the individual

may use them to assist; to either progress or not progress successfully in the decision-making process (Meyer-Griffith et al., 2009).

Sampson et al. (1998) collected much information concerning the concept of dysfunctional career thinking and identified relevant terms.

Dysfunctional career thinking has been variously characterized as *dysfunctional career beliefs* (Krumboltz, 1990), *dysfunctional cognitions* (Corbishley & Yost, 1989), *faulty self-efficacy beliefs* (Brown & Lent, 1996), *irrational expectations* (Nevo, 1987), *misconceptions* (Thompson, 1976), *myths* (Lewis & Gilhousen, 1981), *self-beliefs* (Borders & Archadel, 1987), *self-defeating assumptions* (Dryden, 1979), *self-defeating behavior* (Hornak & Gillingham, 1980), and *self-defeating statements* (Strawser & Figler, 1986). (as cited in Sampson et al., 1998, p. 116)

Career thoughts are referred to as “outcomes of one’s thinking about assumptions, attitudes, behaviors, feelings, plans, and/or strategies related to career problem solving and decision making” (Sampson et al., 1996b, p. 2). Dysfunctional career thoughts are referred to as “processing of information which can impair an individual’s ability to solve career problems and to make career decisions” (Sampson et al., 1996b, p. 2).

The cognitive therapy theoretical approach was a major influence on the CTI. Cognitive therapy (Beck, 1976; Beck, Rush, Shaw, & Emery, 1979) asserts that dysfunctional thoughts have a negative effect on an individual’s actions (Sampson et al., 1998). Dysfunctional thoughts are detrimental to an individual’s overall livelihood and self-worth (Kuiper, Olinger, & Swallow, 1987). According to Corbishley and Yost (1989), an individual’s ability to complete important steps toward their career goal (i.e., resume writing and networking) may be negatively impacted by their emotions (i.e., low self-esteem and fear) and dysfunctional cognitions (i.e., “I shouldn’t”

and “I can’t”). Kinnier and Krumboltz (1984) affirmed that distorted career beliefs can potentially contribute to self-defeating experiences. Judge and Locke (1993) found that dysfunctional attitudes were associated with subjective well-being, ambition, and contentment with one’s job.

Career Thoughts Inventory

CTI items include aspects of the aforementioned components (i.e., self-knowledge, occupational knowledge, communication, analysis, synthesis, valuing, execution, and executive processing; Gilbert, 1997). According to Sampson et al. (1998), the CTI was developed to evaluate and screen dysfunctional thoughts that hinder the decision-making process using a rational-empirical approach. After conducting research on dysfunctional thoughts, each of the eight CIP components were confirmed (Sampson et al., 1998). The authors of the CTI were then able to identify 248 items, determined through their past experience as career services practitioners (Sampson et al., 1998). The items were then narrowed to 195 items, then reviewed by a panel to determine any bias (Sampson et al., 1998). The 195 items were then administered to 320 volunteer undergraduate students. Items from a social desirability scale were also included along with the 195 items (Sampson et al., 1998). Because no bias existed and also because the items accurately addressed desired content, 80 items were withheld (Sampson et al., 1998). Three constructs—DMC, CA, and EC—were established after administering these items with the voluntary sample of 196 students (Sampson et al., 1998). Clients seeking career services were also given the assessment, thereby establishing a distinction between clients and non-clients (Sampson et al., 1998). Resulting from the distinction of clients and non-clients, and content coverage, a 48-item version was then retained (Sampson et al., 1998).

As a self-administered 48-item assessment, the CTI detects dysfunctional thoughts in the decision-making process (Sampson et al., 1998). The CTI is based on the premise that, “whereas dysfunctional thinking in career problem solving and decision making cannot be measured directly, such thinking can be inferred from an individual’s endorsement of statements (test items) reflecting a variety of dysfunctional career thoughts” (Sampson, et al., 1996b, p. 2).

Clients are more likely to experience adversities when making career decisions as a result of their dysfunctional thoughts (Sampson et al., 1998). According to Keller (1983), an individual’s ability to screen, code, categorize, and evaluate information properly is strained as a result of dysfunctional thoughts. The ability to screen, code, categorize, and evaluate information appropriately is not typically observed among adults, college students, and high school students who are experiencing dysfunctional career thoughts or cognitions. For this reason, an accurate and useful tool such as the CTI has been developed to evaluate the dysfunctional career thoughts of 11th- and 12th-grade high school students, college students, and adults (Sampson et al., 1998). A discussion on the validity and reliability of the CTI is provided in Chapter 3.

As a screening tool, the CTI can be used to diagnose individuals who are experiencing dysfunctional thinking as they navigate through the career development process (Sampson et al., 1999). Once these individuals have been assessed as having dysfunctional thoughts, this will dictate the services they need (Sampson et al., 1999). Generally, the higher the level of dysfunction, the more services they will need (Sampson et al., 1999).

As a needs-assessment tool, the CTI can be used to determine the root of a problem (also referred to as the problem space) or the causes of dysfunctional thinking (Sampson et al., 1999). As an individual engages in the complex endeavor of solving their career problem, they are monitoring the thoughts and emotions that may be hindering their ability to make decisions (i.e.,

problem space; Peterson, 1998). Interventions that will assist individuals with their problem can then be suggested according to their level of dysfunctional thinking (Sampson et al., 1999).

DMC, CA, and EC are the three construct scales included in the CTI and each represents a score related to negative cognitions (Sampson et al., 1998). For the practitioner, the scores from each of these three scales (or constructs) become especially significant in understanding what clients are experiencing. DMC occurs when an individual experiences confusion or debilitating emotions that may hinder their ability to make decisions. CA refers to the anxiety that may be inhibiting the individual to commit to a particular career choice (Sampson et al., 1999). EC occurs when there is a conflict between what an individual wants to pursue as a career choice and what the important people in their lives are saying about their choices (Sampson et al., 1999).

Research Studies Using the Career Thoughts Inventory

Several studies have been conducted that showed a relationship between dysfunctional career thoughts and other constructs. Dipeolu et al. (2002) investigated the relationship between dysfunctional career thoughts and adjustment to disability among 153 college students with learning disabilities who attended a large southern university. Results indicated an association between scores on the CTI and on the Adapted Reaction to Impairment and Disability Inventory Adjustment scale (Dipeolu et al., 2002). The correlations were small between that scale and the CTI total ($r = .31, p < .001$) and the three CTI scales (DMC: $r = .31, p < .001$; CA: $r = .20, p < .05$; EC: $r = .24, p < .05$); however, they were all statistically significant (Dipeolu et al., 2002).

Students who reported high CTI total, DMC, CA, and EC scale scores received comparable high scores on the Adjustment scale of the Adapted Reaction to Impairment and Disability Inventory, with higher scores indicating lower adjustment to their learning disability

(Dipeolu et al., 2002). If the adjustment to their learning disability affected their ability to navigate the career development process, it then becomes imperative to explore the root of the problem as it relates to their adjustment. “Practitioners may explore further with clients the skills developed to cope with their learning disabilities, which may in turn be applied to the career planning process” (Dipeolu et al., 2002, p. 423). Generalizability should be done with caution because of the 9- to 12-month time lapse in data collection, and because students may not be representative of the general population, because they volunteered (Dipeolu et al., 2002).

Meyer-Griffith et al. (2009) explored the association between dysfunctional career thoughts and levels of communication apprehension among 175 college students. For this study, the CTI and the Personal Report of Communication Apprehension were both administered to the undergraduate sample (Meyer-Griffith et al., 2009). Higher levels of decision-making confusion, commitment anxiety, and EC were reported among those with average and high levels of communication apprehension (Meyer-Griffith et al., 2009). The CTI scale scores (DMC: $r = .30$; CA: $r = .20$; EC: $r = .25$) were reported to be significantly ($p = .01$) related to the total communication apprehension score (Meyer-Griffith et al., 2009), which means that an individual’s ability to communicate effectively as a result of communication apprehension may impact their ability to successfully navigate the career development process because of negative career thoughts. It may be that a student decides to choose a specific major or career based on the severity of their communication apprehension or career thoughts (Meyer-Griffith et al., 2009). Interventions such as seeking mental health or career counseling, conducting mock interview sessions, attending interview workshops, and going to a speech therapist were recommended (Meyer-Griffith et al., 2009). Although this study adds significance to the literature because communication impediments and career thoughts had not been previously explored, a limitation

would be generalizability to other groups because most of the subjects were sophomores (Meyer-Griffith et al., 2009).

Saunders et al. (2000) investigated the contributing effects of depression (measured by the Beck Depression Inventory) and dysfunctional career thinking (measured by the CTI) in career indecision among 215 undergraduate students enrolled in an introductory psychology course at a large university in the south. The results indicated that depression ($r = .22$) and dysfunctional career thoughts ($r = .78$) correlated significantly ($p < .001$) with career indecision (Saunders et al., 2000), which means that having depression and negative career thoughts may negatively impact one's ability to make sound career decisions. Furthermore, practitioners need to intervene, exploring both affective and cognitive components that are impeding the career decision-making process. Although this study provided invaluable information to the career development field, a limitation was that the interconnectedness of the constructs requires caution when interpreting the results (Saunders et al., 2000).

Yanchak, Lease, and Strauser (2005) compared dysfunctional career thoughts and individuals' vocational identity ($N = 90$) with various types of disabilities. The researchers also explored the association of career thoughts and vocational identity, discerning whether it was moderated by type of disability. Individuals with cognitive disabilities (i.e., learning disabilities and traumatic brain injury) reported having more EC and decision-making confusion than those with physical disabilities (i.e., orthopedic impairment, spinal cord injury, medical condition, cerebral palsy, and sensory impairment), whereas no differences were found among groups in attitudes of vocational identity (Yanchak et al., 2005). "The multivariate test for differences between the two groups with disabilities was statistically significant, $F(3, 86) = 3.11; p < .05$, indicating that the two groups differed in their career-related thoughts" (Yanchak et al., 2005,

p. 133). The researchers reported that the association between career thoughts and vocational identity was not significantly moderated by the type of disability. A significant relationship ($p < .05$) was reported in CA ($B = -.339$) and decision-making confusion ($B = -.293$) to vocational identity; although EC was related but not significantly related ($B = .02$) to vocational identity (Yanchak et al., 2005). It may be that those with cognitive disabilities experience more decision-making confusion because their disability caused negative cognitions that hinder them from successfully progressing through the decision-making process. They may also feel they are not equipped to enter certain career fields even though their significant others are telling them otherwise, which may be the reason for the higher score on EC. In contrast, an individual with a physical impairment may have a better sense of who they are, also demonstrating the confidence levels to make career decisions (Yanchak et al., 2005) because they have a physical rather than a cognitive condition. A limitation to this study was that the subjects self-reported and therefore were susceptible to response bias (Yanchak et al., 2005).

Lustig and Strauser (2002) explored the effect sense of coherence (measured by the Sense of Coherence Scale) has on career thoughts (measured by the CTI) in a sample of 156 college students. Specifically, these individuals were enrolled in introductory courses in the College of Education at a southern urban institution (Lustig & Strauser, 2002). Antonovsky (1987) described sense of coherence as an individual's ability to view their environment as comprehensible, manageable, and meaningful. Individuals with fewer dysfunctional thoughts reported having a stronger sense of coherence (Lustig & Strauser, 2002).

The omnibus multivariate regression was significant, $F = 5.62 (4, 140) = .86; p < .001$ indicating that the independent variable, sense of coherence, accounted for 14% of the variance of the dependent variables: CTI Total, CTI Decision Making Confusion subscale,

CTI Commitment Anxiety subscale, and CTI External Conflict subscale. (Lustig & Strauser, 2002, p. 8)

The results also indicated a moderate correlation between sense of coherence and CTI Total Score ($r = -.35$) and the three subscale scores (DMC: $r = -.31$; CA: $r = -.37$; EC: $r = -.29$; Lustig & Strauser, 2002). Having fewer negative thoughts indicates an individual has a stronger outlook on the career decision-making process. Additionally, stressors are viewed as challenges rather than seen as problematic in the individual with a strong sense of coherence (Lustig & Strauser, 2002). Therefore, an individual with stronger coherence would have the ability to tackle difficult life decisions such as career decisions (Lustig & Strauser, 2002). One limitation was that because most participants were female college students, generalizing to other groups should be done cautiously; also, these individuals provided self-reports, thereby causing bias related to social desirability (Lustig & Strauser, 2002).

Painter et al. (2008) examined dysfunctional career thoughts and job satisfaction in a sample of 81 adult participants who reported having a high level of ADHD symptoms. Dysfunction career thoughts, job satisfaction, and ADHD symptoms were measured by the CTI, Minnesota Satisfaction Questionnaire, and the Adult Attention Deficit Disorders Evaluation Scale (Painter et al., 2008). The sample was recruited from two college towns located in the southeast and the northeast region (Painter et al., 2008). To determine the impact ADHD symptoms had on each of the variables—dysfunctional career thoughts (total score), DMC, CA, EC, intrinsic job satisfaction, and extrinsic job satisfaction—a regression analysis was conducted (Painter et al., 2008). The results reported significance for ADHD symptoms and dysfunctional career thoughts total score (20%), DMC (13%), CA (20%), EC (16%), and extrinsic job satisfaction (19%; Painter et al., 2008). Intrinsic job satisfaction was the only variable that was

not significant (11%; Painter et al., 2008). Having ADHD symptoms means that an individual is likely to experience dysfunctional career thoughts and also less likely to be satisfied (extrinsically) in their jobs (Painter et al., 2008). As a result, career counselors who have a comprehensive understanding of the disorder could assist individuals with ADHD to navigate the career decision-making process and also help them adapt to their work settings more successfully (Painter et al., 2008). A limitation to this study was that the participants self-reported their ADHD diagnosis (Painter et al., 2008), which means that results may have been skewed due to response bias.

Sud and Kumar (2006) studied the relationship between dysfunctional career thoughts, achievement motivation, and test anxiety among 160 university students in India. CTI, Costello Achievement Motivation Scale, and Test Anxiety Inventory were the three instruments used in this study. Findings indicated that test anxiety had a positive relationship with dysfunctional career thoughts ($r = .11$) and a negative relationship with achievement motivation ($r = -.10$; Sud & Kumar, 2006), which means that an individual with higher dysfunctional career thoughts is likely to have more test anxiety and lower achievement motivation. Evidence to support the findings of this study is inadequate because there is a lack of research conducted on dysfunctional thoughts, anxiety, and achievement motivation (Sud & Kumar, 2006).

Strauser, Lustig, Cogdal, and Uruk (2006) explored the relationship between trauma symptoms and developmental work personality, vocational identity, and career thoughts of 131 students who were attending a large university in the southeast. The following instruments were administered to assess each of the major components of the career development process: Developmental Work Personality Scale, My Vocational Situation, and the CTI (Strauser et al., 2006). Results indicated significant associations between trauma symptoms and the CTI Total

Score ($r = .45, p < .01$), DMC ($r = .41, p < .001$), CA ($r = .42, p < .001$), and EC ($r = .41, p < .001$), the Vocational Identity subscale ($r = -.40, p < .001$), and the Developmental Work Personality Scale ($r = -.47, p < .001$; Strauser et al., 2006).

Having more trauma symptoms means an individual is more likely to have higher dysfunctional thoughts, and also likely to experience lower levels of developmental work personality and vocational identity (Strauser et al., 2006). In other words, “Individuals who have experienced, or are currently experiencing, recalled trauma symptoms may have difficulty developing an effective work personality, coherent vocational identity, and effective career thoughts” (Strauser et al., 2006, p. 356). As a result, career counselors should familiarize themselves with trauma symptoms, and assist in applying healthy coping skills to their work environments (Strauser et al., 2006). Effective career counseling would also help ameliorate negative thoughts and improve vocational identity. It may be that an individual would not want to reveal information regarding their trauma symptoms, which means that social desirability is likely to occur (Strauser et al., 2006). Additionally, because this study was nonexperimental, caution was advised when drawing conclusions on the association between trauma and dysfunctional career thoughts (Strauser et al., 2006).

Van Ecke (2007) investigated the association between attachment style and dysfunctional career thoughts. Forty six Dutch and Belgian immigrants (all living in California) were administered the Experiences in Close Relationships-Revised (to assess attachment style) and the CTI (to assess dysfunctional thoughts; Van Ecke, 2007). Although a significant, positive correlation was found between the CTI total score, attachment-style anxiety ($r = .30, p < .05$), and attachment-style avoidance ($r = .41, p < .00$) scores, a positive correlation existed between attachment-style anxiety and DMC ($r = .23, p < .13$), CA ($r = .24, p < .11$), and EC ($r = .22,$

$p < .15$; Van Ecke, 2007). Last, attachment-style avoidance was found to be significant with DMC ($r = .36, p < .01$), and EC ($r = .40, p < .01$; Van Ecke, 2007). If an individual has higher levels of anxiety and avoidance in relationship attachment, they are likely to experience more dysfunctional career thoughts (Van Ecke, 2007). To further elaborate, if an individual demonstrates having higher anxiety (due to focusing on their personal life) and avoidance (due to focusing on their work life), they have less secure attachments, which may negatively impact their work–life balance and their ability to make career decisions. Having knowledge about each of these attachment styles can provide an added awareness to the career counseling process. Although this study provides a unique perspective to the career development field, a limitation was that the participants self-reported (Van Ecke, 2007).

Kleiman et al. (2004) explored the association between the CTI and the Career Decision-Making Difficulties Questionnaire. For this study, 192 university students attending a large public university completed the CTI and Career Decision-Making Difficulties Questionnaire assessments in a career-planning course (Kleiman et al., 2004). Results indicated that the association was $r = .82, p < .01$ between the total scores of the two assessments (Kleiman et al., 2004). The association between the two measures indicated that the higher the dysfunctional career thoughts, the more difficulties students were likely to encounter when making career decisions. Also, both measures could potentially assess career decision-making readiness (Kleiman et al., 2004). A limitation of this study was the possibility of a halo effect, because participants filled out both questionnaires (Kleiman et al., 2004).

Kilk (1997) compared the differences in dysfunctional thoughts between college students ($N = 346$) who had chosen a major (or field of study) and those who had not yet made a selection. There were significant differences found between these two groups according to the scores

(except EC) on the CTI: CTI Total $F = 25.75, p < .05$; DMC $F = 36.57, p < .05$; and CA $F = 16.61, p < .05$ (Kilk, 1997). Specifically, higher dysfunctional thoughts were reported among students who had not chosen a field of study than to those who had made a selection, which indicated that the undecided population was likely to encounter more issues with dysfunctional career thoughts (Kilk, 1997). In addition to the limitation of self-reporting was the limitation that the negativity of the questions on the CTI implied it was measuring dysfunctional thinking (Kilk, 1997).

Osborn (1998) examined the relationships among perfectionism, dysfunctional career thoughts, and career indecision in a sample of 123 undergraduate students who were attending a small institution in the southeast. Perfectionism, dysfunctional career thoughts, and career indecision were measured by the Frost Multidimensional Perfectionism Scale, The CTI, and the Career Decision Scale (Osborn, 1998). Although relationships were found to be positive and significant for each of the variables, perfectionism was found to be associated with dysfunctional career thoughts ($r = .211, p < .05$) and career indecision ($r = .180, p < .05$); the strongest relationship existed between career indecision and total dysfunctional thoughts ($r = .775, p < .01$; Osborn, 1998). The results suggested that dysfunctional thoughts strongly influenced career indecision, whereas perfectionistic tendencies may also have had an impact on students dysfunctional career thoughts and career indecision (Osborn, 1998). An individual with perfectionistic tendencies has an unattainable ideal of what they want to achieve, which may hinder their ability to make a sound decision. A limitation of this study was that most of the students were not declared to be undecided or indecisive when they participated in the study; this may have impacted the results of career indecision (Osborn, 1998). Another limitation was the

inability to generalize to other racial groups because most individuals who participated in this study were Caucasian (Osborn, 1998).

In summary, previous studies found dysfunctional career thoughts to be significantly correlated with trauma symptoms (Strauser et al., 2006), depression and career indecision (Saunders et al., 2000), perfectionism and career indecision (Osborn, 1998), the inability to choose a career field (Kilk, 1997), communication apprehension (Meyer-Griffith et al., 2009), level of ADHD symptoms (Painter et al., 2008), adjustment to one's learning disability (Dipeolu et al., 2002), test anxiety and achievement motivation (Sud & Kumar, 2006), and attachment style (Van Ecke, 2007). Furthermore, more dysfunctional career thoughts were reported in individuals with cognitive disabilities than to those with physical disabilities (Yanchak et al., 2005).

To conclude, dysfunctional thinking can have an effect on some types of pathology such as communication disorders, attachment style, depression, perfectionism, learning disabilities, trauma, and ADHD symptoms. It can also have an effect on adults' ability to make career decisions and on how they function academically. Although most studies reported high levels of dysfunctional career thoughts, there was one study that reported low levels of dysfunctional career thoughts. The results from that study supported the concept that individuals with fewer dysfunctional thoughts reported having a stronger sense of coherence (Lustig & Strauser, 2002). Antonovsky (1987) described sense of coherence as an individual's ability to view their environment as comprehensible, manageable, and meaningful. By having such a positive outlook on the environment, an individual's ability to manage and take ownership of their career decisions would likely have an effect on their dysfunctional career thoughts, thereby leading to low levels of dysfunctional career thoughts.

Career Interventions Rating Scale and Effects of Interventions

The High School Career Intervention Rating Scale (HSCIRS) consists of seven questions that assess an individual's level of participation in career counseling interventions during their high school years. The scale is rated from 0–2, with *Never* being denoted as zero, *One Occasion* being denoted as 1, and *More than One Occasion* being denoted as 2. The total score ranges from 0–14 with zero indicating low participation in career interventions and 14 indicating high participation in career interventions. The rating scale assesses level of participation in the following career interventions: (a) individual career counseling with a school counselor or teacher, (b) group career counseling with 4–12 students conducted by a school counselor or a teacher, (c) classroom career instruction by a school counselor or teacher, (d) the Career Interest Assessment, (e) career field trip (such as a hospital), (f) educational field trip (such as to a community college or university), and (g) guest speaker in a classroom or auditorium talking about an occupation.

A few studies have documented the effects of career interventions on career choice. Koivisto et al. (2011) examined the preparedness for career choice and attitude toward career planning using a sample of ninth-grade students ($N = 1,034$). Career choice and students' attitudes toward career planning were evaluated during and after the application of the Towards Working Life Intervention, which consisted of a 1-week workshop (Koivisto et al., 2011). As a result of the intervention, adolescents demonstrated higher levels of positivity toward career planning and showed enhanced levels of preparedness for career choice (Koivisto et al., 2011).

In their qualitative study, Hughey and Lapan (1993) evaluated a high school guidance-language arts career unit in which 25 high school juniors participated at a Midwestern public

high school. The competencies highlighted in this guidance-language arts career unit were the following:

(a) exploring possible careers and the world of work; (b) exploring several different careers in areas of interest; (c) improving knowledge of how to prepare for a career; (d) developing some tentative plans after graduation; (e) improving understanding of how abilities are related to career choices; (f) improving understanding of the role of women in today's workforce; (g) understanding opportunity to enter careers traditionally held by members of the opposite sex; (h) improving knowledge about various colleges and what they offer; (i) gaining insight into choosing colleges to prepare for a career; (j) gaining insight into the careers that complement certain majors and into the future of those careers; and (k) having a better understanding of vocational interests, aptitudes, and abilities. (Hughey & Lapan, 1993, p. 97)

These students reported being more confident in the career-planning process, and were also more knowledgeable about the career exploration and decision-making process (Hughey & Lapan, 1993).

Loughead and Shu-Hui (1995) evaluated a career development program (PRO-100) using a sample of 58 at-risk youth from 14 to 18 years old, of whom 90% were either Black or Hispanic. Coming from a poverty-level environment, the youth in the sample all lived in the inner city in the Midwest (Loughead & Shu-Hui, 1995). As part of PRO-100, interns (i.e., at-risk youth) were taught important aspects of the career development process and job skills (Loughead & Shu-Hui, 1995). Various activities such as interviews, special events, examinations, homework, small-group exercises, lectures/readings, and role plays were integrated in the curriculum (Loughead & Shu-Hui, 1995). Interview Day and Career Day were two of the special

events held for the interns in the program (Loughead & Shu-Hui, 1995). Local representatives attended Interview Day to conduct videotaped interview sessions with the interns (Loughead & Shu-Hui, 1995). These sessions were then critiqued by classmates. Blue- and white-collar professionals (most of whom were members of minority groups) attended Career Day to share their personal achievements in their respective fields (Loughead & Shu-Hui, 1995). The results revealed that these youth increased their knowledge of career planning and how to secure a job (Loughead & Shu-Hui, 1995). Overall, the program helped participants feel rewarded and satisfied about the career development process (Loughead & Shu-Hui, 1995).

ADHD Stigma Questionnaire

Using a sample of 301 community adolescents between the ages of 11–19 years old, Kellison, Bussing, Bell, and Garvan (2010) evaluated the ASQ. Psychometric properties were reported as acceptable, indicating that it is a reliable and valid measure to assess an individual's stigma perceptions (Kellison et al., 2010). As a 26-item questionnaire that uses a 4-point Likert scale, the items ranged from 0 = *strongly disagree* to 3 = *strongly agree*, with higher total scores depicting more stigma perceptions (Kellison et al., 2010). During its development, a confirmatory factor analysis revealed three subscales (i.e., Disclosure Concerns, Negative Self-Image, and Concern with Public Attitudes; Kellison et al., 2010). Some of the sample items included in the ASQ are

- (a) People who have ADHD feel guilty about it, (b) People with ADHD worry that others may judge them when they learn that they have ADHD, (c) Most people think that a person with ADHD is damaged, (d) People with ADHD are treated like outcasts, (e) People who have ADHD are very careful about who they tell, and (e) Most people with ADHD are rejected when others find out. (Kellison et al., 2010, p. 368)

After a thorough review of the literature, no research study has been identified on the age of diagnosis and subsequent behavior on adults. Therefore, this study makes an inroad by looking at the career domain among college students with ADHD. The earlier the diagnosis, the more of an impact ADHD symptoms may have on career thoughts.

Summary of the Chapter

In this chapter, I introduced and defined ADHD and dysfunctional career thoughts, and provided research on college students with ADHD. Researchers explored factors (i.e., academic functioning, academic and social adjustment, social skills, self-esteem, career decision-making self-efficacy, and thought patterns) that can negatively impact college students with ADHD. I defined AOC and described research studies that refuted the requirement that ADHD symptoms needed to start before the age of 7. I included a comprehensive discussion regarding ADHD diagnosis and how the diagnosis impacts an individual at each stage of development (i.e., childhood, adolescence, and adulthood). I provided an overview of Erikson's developmental stages, not only to illustrate what occurs developmentally from infancy through childhood and adulthood, but also to illustrate that the timing of one's diagnosis may have an effect on the developmental process. Furthermore, I expanded a discussion on the differences that occur at each stage of development. I defined dysfunctional career thoughts, and introduced the CTI. Last, I thoroughly discussed the Career Interventions Rating Scale, the effects of the interventions, and the ASQ. Given what we know of the long term impact that ADHD diagnosis has on children, I predict that the earlier the chronological age of diagnosis, the greater the likelihood of dysfunctional career thoughts among college students diagnosed with ADHD symptoms.

Chapter 3:

Methodology

This research study examined the relationship between the age of diagnosis and the occurrence of dysfunctional career thoughts among college students with ADHD. Specifically, I will discuss the research questions and hypotheses, participants, data-collection procedures, instrumentation, research design, and data analysis in this chapter.

Research Questions and Hypotheses

Given the potential relationship between the age of ADHD diagnosis and the occurrence of dysfunctional career thoughts, I posed the following research questions:

1. To what extent does chronological age of first diagnosis predict the occurrence of dysfunctional career thoughts, as measured by the CTI among college students with ADHD?

Hypothesis: The earlier the chronological age of diagnosis, the greater the likelihood of dysfunctional career thoughts among college students diagnosed with ADHD symptoms.

2. To what extent does the ASQ predict the occurrence of dysfunctional career thoughts, measured by the CTI?

Hypothesis: The higher the ADHD stigma, the higher the dysfunctional career thoughts.

3. To what extent does age of diagnosis, the stigma of one's ADHD diagnosis, measured by the ADHD Stigma Questionnaire, and an individual's level of participation in career interventions (i.e., individual counseling, group counseling, career workshop,

and career assessment) in high school, measured by the HSCIRS, predict an individual's dysfunctional career thoughts, measured by the CTI?

Hypothesis: The extent of age of diagnosis, ADHD stigma, and the extent of participation in career interventions all capture significant variation in the prediction of dysfunctional thoughts.

Participants

Students who were currently enrolled at two large public universities and were registered with ADHD at the Offices of Disabilities in Virginia were invited to participate in this study. The total population of registered college students with ADHD at one of the two institutions was 355. A total of 92 students were registered with ADHD at the second institution. Employees in each Office of Disability contacted undergraduate students diagnosed with ADHD who were registered at the offices to invite them to participate in the study.

Data-Collection Procedures

The directors of the disability office provided assistance with the data-collection portion of this study. After securing IRB Approval, invitations were extended to the 447 eligible students. For the purpose of confidentiality, the only people with direct access to the data were members of the dissertation committee and me. Procedures were conducted similarly at the two institutions. At the first institution and second institution, the Directors at each of the disabilities office made initial contact with students through e-mail, introducing this study and providing the URL to the survey (see Appendix A and B). The students who chose to voluntarily participate then accessed the site and indicated their consent by entering the survey. Directors sent two follow-up e-mails (see Appendix E) to students 2 weeks after the study was initially conducted, as a reminder that

they could still choose to participate in this study if they had not done so already. The two follow-up e-mails were sent a week apart.

SurveyMonkey was the primary website used for data collection in this study. The publishers of the CTI provided permission for the survey to be delivered electronically (see Appendix C). Included in the survey were demographic questions such as the student's name initials, age, education, major, sex, and ethnicity/race (see Appendix D). Also included in the survey were questions asking who diagnosed them and if they had been diagnosed with a learning disability (i.e., reading, writing, and math; see Appendix D). Additionally, I included questions to assess whether they have anxiety, depression, or both, and if they were currently on medication (see Appendix D). Questions to assess the age of participants' diagnosis were included (see Appendix D). I also included the CTI questions, the High School Career Participation Survey, and the ASQ.

To conclude, the data were collected through SurveyMonkey at both institutions. The survey used a secure link and the results of the study are anonymous. Once students have responded, the data was exported to an Excel spreadsheet and I analyzed and reported the results of the study. The major professor's and my computers are the only places where data are stored, and both are password protected. Last, students from both institutions were awarded a \$100 prize in a drawing. Because the study was conducted similarly at the two institutions, the students from both institutions sent me their e-mail addresses if they wanted to be considered for the drawing (see Appendix D).

Instrumentation

Career Thoughts Inventory. According to Sampson et al. (1998), the CTI was developed to evaluate and screen dysfunctional thoughts that hinder the decision-making process using a rational-empirical approach. Internal consistency and stability were the two types of reliability assessed for the CTI. A score of at least .70 is considered an acceptable correlation coefficient for both internal consistency and test-retest measures (Litwin, 2002). According to Sampson et al. (1999), “the internal consistency of the CTI Total Score and construct scales was determined by calculating coefficient alphas for each of the respective norm groups” (p. 5). The norm groups consisted of adults ($n = 571$), college students ($n = 595$), high school students ($n = 396$), and clients ($n = 376$) (Sampson et al., 1996b). A range was reported as a way to describe the high and lowest scores for internal consistency for each of the groups (Sampson et al., 1996b). The CTI Total score ($r = .93-.97$) and DMC ($r = .90-.94$) reported high internal consistency, whereas CA ($r = .79-.91$) and EC ($r = .74-.81$) reported lower internal consistency (Gilbert, 1997). “The stability concerns the extent to which individuals achieve the same CTI scores on two different occasions” (Sampson et al., 1999, p. 5). Administered twice over a 4-week interval, the CTI was completed by a group of 48 high school students in the 11th- and 12th-grades and 73 college students to determine the stability of the instrument (Sampson et al., 1999). CTI Total score ($r = .86$), DMC ($r = .82$), CA ($r = .79$), and EC ($r = .74$) and the CTI Total score ($r = .69$), DMC ($r = .72$), CA ($r = .70$), and EC ($r = .52$) were the test-retest correlations reported for college and high school students, respectively (Gilbert, 1997). The test-retest scores were higher among college than high school students and all of these scores were considered acceptable with the exception of the EC score.

Content, construct, convergent, and criterion validity were the four types of validity assessed for the CTI. According to Sampson et al. (1999), “content validity concerns the congruence of CTI items, CIP content dimensions, and construct scales with the theoretical basis of the instrument” (p. 6). As previously mentioned, there is a direct association among CIP theory, the CTI items, the construct scales (i.e., CA, EC, and DMC), and the eight content dimensions (i.e., self-knowledge, occupational knowledge, communication, analysis, synthesis, valuing, execution, and executive processing; Sampson et al., 1999).

“Construct validity is concerned with factorial validity, the extent to which clusters of empirically associated items, that are conceptually consistent with the theory, can be identified and reproduced across populations” (Sampson et al. 1998, p. 122). A range was reported as a way to describe the high and lowest scores for construct validity for each of the groups (Sampson et al., 1996b). The total for each group consisted of clients ($n = 376$), adults ($n = 571$), college students ($n = 595$), and high school students ($n = 396$) (Sampson et al., 1996b). Established through a group of factor analyses, the CTI Total Score reported a high correlation ($r = .89$ to $.94$) with DMC, whereas EC reported a lower association with dysfunctional thinking ($r = .55$ to $.80$) for all groups (i.e., clients, adults, college students, and high school students; (Sampson et al., 1996b). CA also reported a high correlation ($r = .75$ to $.92$) with the CTI Total Score. The higher correlation with DMC, CA and CTI Total score indicates that both DMC and CA are susceptible toward dysfunctional thinking, whereas EC is somewhat less related to dysfunctional thinking and therefore has less of an effect on dysfunctional thinking (Sampson et al., 1996b).

“Convergent validity is concerned with the extent to which the CTI Total score and construct scale scores correlate with other measures of similar constructs in a theoretically consistent direction” (Sampson et al., 1999, p. 6). Four assessments (i.e., My Vocational

Situation, The Career Decision Scale, The Career Decision Profile, and The NEO PI-R) were administered to determine convergent validity (Sampson et al. 1999). Specifically, the assessments were completed by 50 adults, 152 college students, and 151 high school students in the 11th and 12th grades (Sampson et al., 1999). Not surprisingly, there was a direct association found between the CTI and constructs such as indecision, neuroticism, anxiety, angry hostility, and depression, whereas an indirect association was found between the CTI and constructs such as vocational identity, lack of information needs, lack of barriers, and certainty (Sampson et al., 1996b).

To determine criterion validity, a demographic form and the CTI were filled out by clients and nonclients who were attending Florida State University and Ohio State University (Sampson et al., 1996b). “Criterion validity is concerned with the extent to which the CTI accurately discriminates between persons seeking career services (clients) and persons not seeking career services (nonclients)” (Sampson et al. 1999, p. 7). At both institutions, those enrolled in a career course were identified as clients, whereas those enrolled in either a business or science course were identified as nonclients (Sampson et al., 1996b). College students seeking career services ($N = 199$) reported significant mean differences in CTI scores compared to those not seeking career services ($N = 149$; Sampson et al., 1996b). The significant differences in scores may be due to the fact that students have initially enrolled in a career course because they need some direction with their major/career goals.

ADHD Stigma Questionnaire. Using a sample of 301 community adolescents between the ages of 11–19 years old, Kellison et al. (2010) evaluated the ASQ. Psychometric properties were reported as acceptable, indicating that it is a reliable and valid measure to assess an individual’s stigma perceptions (Kellison et al., 2010). A score of at least .70 is considered an

acceptable correlation coefficient for both internal consistency and test-retest measures (Litwin, 2002). The internal-consistency reliability measures were $r = .93$ for all items, $r = .83$ for Disclosure Concerns, $r = .81$ for Negative Self-Image, and $r = .87$ for Concern with Public Attitudes (Kellison et al., 2010). Furthermore, the test-retest reliability (conducted at a 2-week interval) were $r = .71$ for all items, $r = .73$ for Disclosure Concerns, $r = .55$ for Negative Self-Image and $r = .68$ for Concern with Public Attitudes (Kellison et al., 2010). The relationships between ADHD stigma on the ASQ and the emotional constructs on the Behavior Assessment System for Children Self Report of Personality were examined to assess construct validity (i.e., convergent and divergent validity; Kellison et al., 2010). A comparison of the slopes of the relationship between ASQ and the Emotional Symptom Index for the ADHD problem group (slope = 6.32) and the no-problem group (slope = -.27) indicated that there was a significant moderating effect of ADHD diagnosis ($p = .005$; Kellison et al., 2010). Although there was evidence of convergent validity between the ASQ and four of the five emotional constructs on the Behavior Assessment System for Children Self Report of Personality (i.e., emotional symptoms, clinical maladjustment, depression, and self-esteem), because there was a relationship, there was also evidence of divergent validity between the ASQ and school maladjustment because no significant relationship was found between the ASQ and school maladjustment (Kellison et al., 2010). The instrumentation for this study included the demographic questions of age, education, major, sex, and ethnicity/race. These questions have been provided to obtain descriptive data of the ADHD sample (see Appendix D).

Research Design

I used a correlational research design to examine the relationship between each of the variables (i.e., dysfunctional career thoughts and chronological age) for this study. According to

Smith and Glass (1987), the premise of correlational studies is to decipher between relationships among variables. Two purposes are emphasized in correlational studies.

The first is building theory about phenomena by better understanding the constructs, what they consist of, and how they relate to other constructs and the second purpose of correlational studies is to enable us to predict one variable from another (or several others). (Smith & Glass, 1987, p. 198)

“When two variables are related—that is, when they *covary* or are *concomitant* with each other—one “carries information” about the other” (Smith & Glass, 1987, p. 199). In this study, if a relationship existed between age and career thoughts, each of the variables “carried information” about the other, and age was predictive of dysfunctional career thoughts.

Data Analysis

The statistical software SPSS was used for data analysis. Following are each of the research questions and the methodology conducted for each one:

1. To what extent does chronological age of first diagnosis predict the occurrence of dysfunctional career thoughts, as measured by the CTI among college students with ADHD?

For the analysis of this question, a regression analysis was used to determine whether there are predictive relationships among the independent variable (i.e., chronological age) and the dependent variable (i.e., dysfunctional career thoughts score). *X*, or chronological age, is the predictor variable, and *Y*, or dysfunctional career thoughts, is the criterion variable (Goodwin, 2005). Specifically in a regression equation, the *X* value (i.e., chronological age) is used to predict the *Y* value (i.e., dysfunctional career thoughts; Goodwin, 2005). For this analysis, I first determined the relationship between the *X* and *Y* value. The degree of the relationship between

the variables was denoted by r , the correlation coefficient (Heppner, Wampold, & Kivlighan, 2008). “Suppose that as one variable (X) increases, so do the scores on the second variable (Y); then X and Y vary together, or covary, and have a strong positive relationship” (Heppner et al., 2008, pp. 244–245). A relationship does not exist if these scores (i.e., X and Y) do not vary with one another (Heppner et al., 2008). A very strong relationship is synonymous with $+1.00$, whereas a strong negative relationship is synonymous with -1.00 (Heppner et al., 2008). Once the correlation is determined, the square of the correlation coefficient (R^2) is calculated to determine the variance in Y by the variance in X (Coolican, 2004). The size of the (R^2) then determines the prediction of dysfunctional career thoughts (Y) from chronological age (X) (Coolican, 2004).

2. To what extent does the ASQ predict the occurrence of dysfunctional career thoughts, measured by the CTI?

Hypothesis: The higher the ADHD stigma, the higher the dysfunctional career thoughts.

For the analysis of this question, a regression analysis was also used to determine whether there are predictive relationships among the independent variable (i.e., ADHD stigma) and the dependent variable (i.e., dysfunctional career thoughts score). X , ADHD stigma, was the predictor variable, and Y , or dysfunctional career thoughts, was the criterion variable (Goodwin, 2005). Specifically in a regression equation, the X value (i.e., ADHD stigma) is used to predict the Y value (i.e., dysfunctional career thoughts; Goodwin, 2005). For this analysis, I first determined the relationship between the X and Y value. The degree of the relationship between the variables was denoted by r , the correlation coefficient (Heppner et al., 2008). Once the correlation is determined, the square of the correlation coefficient (R^2) is calculated to determine

the variance in Y by the variance in X (Coolican, 2004). The size of the (R^2) then determines the prediction of dysfunctional career thoughts (Y) from ADHD stigma (X) (Coolican, 2004).

3. To what extent does age of diagnosis, the stigma of one's ADHD diagnosis, measured by the ADHD Stigma Questionnaire, and an individual's level of participation in career interventions (i.e., individual counseling, group counseling, career workshop, and career assessment) in high school, measured by the HSCIRS, predict an individual's dysfunctional career thoughts, measured by the CTI?

For the analysis of this question, a multiple regression was used. In a multiple regression, the association between more than one predictor (or independent variable) and a criterion (or dependent variable) is determined (Heppner et al., 2008). Simultaneous regression is the specific method of multiple regression used (Heppner et al., 2008).

Simultaneous regression is most often used when there is no basis for entering the predictor variable before any other predictor variable, and the researcher wants to determine the amount of variance each predictor variable uniquely contributes to the prediction of the criterion variable. (Heppner et al., 2008, p. 247)

In this case, I looked at an individual's age of diagnosis, (i.e., independent variable), the ADHD stigma score (i.e., independent variable) and the high school interventions score (i.e., independent variable) as predictor variables of the Total CTI score (i.e., criterion or dependent variable). For this analysis, I first determined the relationship between each of the X values (i.e., age of diagnosis, ADHD stigma, level of participation of career interventions) and Y value (dysfunctional career thoughts). The degree of the relationship between the variables was denoted by r , the correlation coefficient (Heppner et al., 2008). Once the correlation is determined, the square of the correlation coefficient (R^2) is calculated to determine the variance

in Y by the variance in X (Coolican, 2004). The size of the (R^2) then determines the prediction of dysfunctional career thoughts (Y) from age of diagnosis (X), ADHD stigma (X), and the level of participation of career interventions (X) (Coolican, 2004).

The alpha level was set at .05 to denote significant association between age of diagnosis and CTI. The level was deemed sufficient to protect against Type I and Type II errors, given the anticipated participant rate in the study. For missing data, I deleted files that had incomplete data. Additionally, I dropped incomplete cases by eliminating subjects from the data file.

Summary of Chapter

To summarize, this chapter discussed the methodology of this study. Specifically, I included the research questions and hypotheses, comprehensive information about the participants, data-collection procedures, instrumentation, research design, and data analysis method.

Chapter 4:

Results of Study

In this chapter, I present the results of the research into the relationship between the age of ADHD diagnosis and the occurrence of dysfunctional career thoughts. These results include the demographic characteristics of the sample and the results of the analyses, including the hypotheses and results for each research question posed. I performed separate regressions to explore the relationship between the age of ADHD diagnosis and the occurrence of dysfunctional career thoughts.

The purpose of this study was to examine the relationship between age of diagnosis and dysfunctional career thoughts among college students with ADHD. The ASQ (Kellison et al., 2010), the HSCIRS, and the CTI (Sampson et al., 1996a) were the assessment instruments used for this study. The ASQ measures individuals' stigma perception of themselves and how society views their disorder (Kellison et al., 2010). The CTI measures dysfunctional career related thoughts (CTI; Sampson et al., 1996a), and the HSCIRS measures the level of participation in career counseling interventions during their high school years.

To examine the relationship between age of diagnosis and dysfunctional career thoughts, the following research questions were posed: (a) To what extent does chronological age of first diagnosis predict dysfunctional career thoughts; (b) To what extent does ADHD stigma predict dysfunctional career thoughts; and (c) To what extent does age of diagnosis, the stigma of one's ADHD diagnosis, and an individual's level of participation in career interventions in high school predict an individual's dysfunctional career thoughts? I performed separate regression analyses to examine the prediction of each of these variables to dysfunctional career thoughts. I provide a summary of the results along with the research questions and hypotheses.

Sample Demographic Data

Across the two universities, 447 undergraduate students with ADHD were invited to participate, and 108 students participated. However, the total number of participants will vary according to the variables inputted for each analysis conducted below. The respondents who answered all survey items for each analysis were included, and if the respondents did not answer any of the items they were excluded from the analysis. Participants provided information such as their name initials, age, education, major, sex, and ethnicity/race. The questionnaire also asked about an individual's age of diagnosis and the onset of symptoms. The survey inquired as to who made the initial diagnoses and if they had ever been diagnosed with a learning disability (e.g., reading, writing, and mathematics). Additionally, the survey asked whether they have anxiety, depression, or both, and if they were currently on medication.

Fifty participants received a diagnosis from a psychologist. Twenty one were diagnosed by a psychiatrist, and 20 had been diagnosed by a physician who specializes in Internal, Family, or Pediatric Medicine. Five were diagnosed by a therapist, and six participants were not diagnosed by any of the aforementioned, and had selected "Other." Six participants omitted this item completely. Reading ($n = 26$), mathematics ($n = 10$), and writing ($n = 8$) were the disabilities that accompanied the ADHD disorder. Thirty nine participants reported that they did not have a disability, and 13 items were omitted completely. Autism ($n = 1$) and ADHD ($n = 6$) were both reported by the participants as learning disabilities. Five participants reported that they did have a disability, but were not identifiable. Twenty eight participants had anxiety, 10 participants had depression, and 29 had both. Thirty three participants reported that they did not have either depression or anxiety, and six participants omitted this item completely. Two participants reported that they used to suffer from anxiety and/or depression, but they no longer

have it. The results also indicated that most are currently on medication ($n = 80$), and have been so for years. Twenty participants stated that they were not taking any medications, whereas two participants reported medications that they were taking for other health issues. Lastly, six items were omitted by the participants.

Participants' ages of first ADHD diagnosis ranged from 1–38 ($M = 14.70$). Table 1 summarizes information about age of first ADHD diagnosis. For this analysis, 101 participants provided their age of diagnosis; therefore, 7 participants omitted this item. The plurality of the participants ($n = 13$) were diagnosed at the age of 18 years old, whereas 10 participants were diagnosed at the age of 7.

Table 1

Frequencies of Attention Deficit Hyperactivity Disorder Diagnosis

		Frequency	Percent	Valid percent	Cumulative percent
Valid	1	1	.9	1.0	1.0
	2	1	.9	1.0	2.0
	4	1	.9	1.0	3.0
	5	4	3.7	4.0	6.9
	6	2	1.9	2.0	8.9
	7	10	9.3	9.9	18.8
	8	8	7.4	7.9	26.7
	9	4	3.7	4.0	30.7
	10	2	1.9	2.0	32.7
	11	1	.9	1.0	33.7
	12	3	2.8	3.0	36.6
	13	4	3.7	4.0	40.6
	14	4	3.7	4.0	44.6
	15	5	4.6	5.0	49.5
	16	4	3.7	4.0	53.5
	17	6	5.6	5.9	59.4
	18	13	12.0	12.9	72.3
	19	7	6.5	6.9	79.2
	20	7	6.5	6.9	86.1
	21	6	5.6	5.9	92.1
	22	1	.9	1.0	93.1
	23	2	1.9	2.0	95.0
	24	1	.9	1.0	96.0
	31	1	.9	1.0	97.0
33	2	1.9	2.0	99.0	
38	1	.9	1.0	100.0	
	Total	101	93.5	100.0	
Missing		7	6.5		
Total		108	100.0		

Since the background variables were very similar between both institutions, the respective samples were combined according to their year in school, race, gender and age. The analysis of each is shown in Tables 2, 3, 4, and 5. The highest number of participants were juniors ($n = 27$). Freshman ($n = 25$), sophomores ($n = 24$) and seniors ($n = 26$) had a lower number of participants (see Table 2). A total of 102 participants reported their year in school, and 6 participants omitted the item because they chose not to report their classification. Additionally, most participants were White ($n = 97$), whereas only two were Asian, three were African American and only four were multiracial (see Table 3). A total of 106 participants reported their race, and 2 participants omitted the item because they chose not to report their race. All 108 participants chose to report their gender and age. A higher number of women participated for each group, with a total of 73 women and 35 men (see Table 4). Ages for both men and women were similar for both institutions, with a mean of 21.06 for men and a mean of 21.49 for women (see Table 5). The age mean was 21.35 for both men and women.

Table 2

Year in School

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Freshman	25	23.1	24.5	24.5
	Sophomore	24	22.2	23.5	48.0
	Junior	27	25.0	26.5	74.5
	Senior	26	24.1	25.5	100.0
	Total	102	94.4	100.0	
Missing		6	5.6		
Total		108	100.0		

Table 3

Race Demographics

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Asian	2	1.9	1.9	1.9
	African American	3	2.8	2.8	4.7
	Multiracial	4	3.7	3.8	8.5
	White	97	89.8	91.5	100.0
	Total	106	98.1	100.0	
Missing		2	1.9		
Total		108	100.0		

Table 4

Gender Demographics

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Male	35	32.4	32.4	32.4
	Female	73	67.6	67.6	100.0
	Total	108	100.0	100.0	

Table 5

Age Demographics

		N	Mean	Std. deviation	Std. error	95% confidence interval for mean		Minimum	Maximum
						Lower bound	Upper bound		
Male	35	21.06	3.796	.642	19.75	22.36	13	34	
Female	73	21.49	4.519	.529	20.44	22.55	18	41	
Total	108	21.35	4.285	.412	20.53	22.17	13	41	

Research Questions, Hypotheses, and Results

1. To what extent does chronological age of first diagnosis predict the occurrence of dysfunctional career thoughts, as measured by the CTI among college students with ADHD?

Hypothesis: The earlier the chronological age of diagnosis, the greater the likelihood of dysfunctional career thoughts among college students diagnosed with ADHD symptoms.

For this research question, I conducted regression analysis to determine the extent of ADHD diagnosis on dysfunctional career thoughts. A regression analysis determined whether there are predictive relationships among the independent variable (i.e., chronological age) and the dependent variable (i.e., dysfunctional career thoughts score). For this analysis, 76 participants completed both the age and CTI questions; therefore, 32 participants were excluded. The initial correlation found no significant relationship between the CTI total score and the age of ADHD diagnosis ($r = .027, p = .818$), which meant there was no relationship found and age of diagnosis was not predictive of dysfunctional career thoughts. Age was not predictive of dysfunctional career thoughts, $B = .027, p = .818$, and was not significant. To explore the effect that each age group had on dysfunctional career thoughts, the age groups were separated into low age at time of diagnosis (1–11), medium (12–18), and high (18–38) groups. The partitioning of the groups was determined according to their developmental progression in school. For example, the low group was designated as the elementary years. The medium group was the middle school and high school stages of development, and the high group is the college years and beyond. The results are shown in Tables 6. An analysis of variance (ANOVA) was used to test differences between age groups. For this analysis, there were a total of 76 participants who had completed

the CTI; therefore, 32 participants were excluded because they did not complete the CTI questions. The means and standard deviations of the CTI total score for each group were reported as the following: low ($M = 41.95, SD = 25.96$), medium ($M = 49.33, SD = 28.91$), and high ($M = 40.50; SD = 25.03$). There was no significant difference found between each of the three groups ($F(1, 75) = .848; p = .432$), which means that even though the medium group (ages 12–18) had reported having the highest score of dysfunctional thoughts. There was no significant difference between each of the groups' levels of dysfunctional thoughts, and each reported low dysfunctional career thoughts. Additionally, a significant main effect was not found for age of diagnosis and dysfunctional career thoughts [$F(1, 75) = .053, p = .818; R = .027, R^2 = .001$ or .1%] (see Table 7).

Table 6

Means and Standard Deviations of CTI Total Score for Low, Medium, and High Age Groups

	N	Mean	Std. deviation	Std. error	95% confidence interval for mean		Minimum	Maximum
					Lower bound	Upper bound		
Low	22	41.9545	25.96055	5.53481	30.4443	53.4648	5.00	87.00
Medium	30	49.3333	28.90929	5.27809	38.5384	60.1282	5.00	95.00
High	24	40.5000	25.03215	5.10967	29.9298	51.0702	5.00	86.00
Total	76	44.4079	26.83986	3.07874	38.2747	50.5411	5.00	95.00

Table 7

Linear Regression Model

Model	R	R ²	Adjusted R ²	Std. error of the estimate	Change statistics				
					R ² change	F change	df1	df2	Sig. F change
1	.027(a)	.001	-.013	27.01085	.001	.053	1	75	.818

2. To what extent does the ASQ predict the occurrence of dysfunctional career thoughts, measured by the CTI?

Hypothesis: The higher the ADHD stigma, the higher the dysfunctional career thoughts.

For this research question, I conducted a regression analysis to determine the extent that ADHD stigma predicts dysfunctional career thoughts. A regression analysis determined whether predictive relationships exist among the independent variable (e.g., ADHD stigma) and the dependent variable (e.g., dysfunctional career thoughts score). The ASQ measures individuals' stigma perception of themselves and also how they believe society views their disorder (Kellison et al., 2010), and as noted above, the CTI measures dysfunctional thoughts (CTI; Sampson et al., 1996a). For this analysis, there were 68 participants who filled out both the ASQ and the CTI; therefore, 40 participants were excluded. I found a positive correlation ($r = .538, p = .000$) between the two scales (i.e., ASQ and CTI), whereas the variance or R^2 was found to be 28.9%. To further illustrate, the higher the ADHD stigma, the higher the dysfunctional career thoughts (see Table 8). The ASQ scale predicted an individual's dysfunctional career thoughts, $B = .540, p = .000$, and was significant. The mean for the Career Thoughts Inventory ($M = 44.46, SD = 26.86$) reported low dysfunctional thoughts (Sampson et al., 1996b), whereas the mean for ADHD Stigma Questionnaire ($M = 32.60, SD = 17.34$) reported high ADHD stigma (Kellison, I., et al., 2010; see Table 9).

Because ADHD stigma was the most significant finding, each individual construct scale was important to interpret as well. For this analysis, there were 77 participants who filled out both the Decision-Making Confusion (DMC) scale and ASQ (and 31 participants were excluded). There were also 79 participants who completed the External Conflict (EC) scale and ASQ, and

79 who completed the Commitment Anxiety (CA) scale and ASQ (and 29 participants were excluded from each). The EC construct had the highest relationship with the ASQ score ($r = .509$, $p = .00$). The correlation between the DMC scale and the ASQ was $r = .464$, $p = .00$, and the correlation between the CA scale and the ASQ was $r = .495$, $p = .00$. Additionally, the correlation between EC and the ASQ was $r = .509$, $p = .00$ (see Table 10). Additionally, a significant main effect was found for ADHD stigma and dysfunctional career thoughts [$F(1, 67) = 26.833$, $p = .000$; $R = .538$, $R^2 = .289$ or 28.9%] (see Table 11). To conclude, the hypothesis was supported because I found a positive relationship between the ASQ and dysfunctional career thoughts and the relationship was statistically significant.

Table 8

Correlations Between Career Thoughts Inventory Total Score and ADHD Stigma

		ADHD Stigma Questionnaire	Career Thoughts Inventory
ADHD Stigma Questionnaire	Pearson Correlation	1	.538(**)
	Sig. (2-tailed)		.000
	<i>N</i>	68	68
Career Thoughts Inventory	Pearson Correlation	.538(**)	1
	Sig. (2-tailed)	.000	
	<i>N</i>	68	68

Table 9

Means and Standard Deviations for Career Thoughts Inventory Total Score and ADHD Stigma

	Mean	Std. deviation	N
Career Thoughts Inventory	44.4559	26.86141	68
ADHD Stigma Questionnaire	32.6029	17.33527	68

Table 10

Correlations Between the ADHD Stigma Questionnaire and the Career Thoughts Inventory

Construct Scales

		ADHD stigma questionnaire	Decision-making confusion	Commitment anxiety	External conflict
ADHD Stigma Questionnaire	Pearson Correlation	1	.464(**)	.495(**)	.509(**)
	Sig. (2-tailed)	.	.000	.000	.000
	N	81	77	79	79
Decision-making confusion	Pearson Correlation	.464(**)	1	.834(**)	.787(**)
	Sig. (2-tailed)	.000	.	.000	.000
	N	77	86	84	85
Commitment Anxiety	Pearson Correlation	.495(**)	.834(**)	1	.745(**)
	Sig. (2-tailed)	.000	.000	.	.000
	N	79	84	91	89
External Conflict	Pearson Correlation	.509(**)	.787(**)	.745(**)	1
	Sig. (2-tailed)	.000	.000	.000	.
	N	79	85	89	91

** Correlation is significant at the 0.01 level (2-tailed).

Table 11

Linear Regression Model

Model	<i>R</i>	<i>R</i> ²	Adjusted <i>R</i> ²	Std. error of the estimate	Change statistics				
					<i>R</i> ² change	<i>F</i> change	<i>df</i> 1	<i>df</i> 2	Sig. <i>F</i> change
1	.538(a)	.289	.278	22.81994	.289	26.833	1	67	.000

3. To what extent does age of diagnosis, the stigma of one's ADHD diagnosis, measured by the ADHD Stigma Questionnaire, and an individual's level of participation in career interventions (i.e., individual counseling, group counseling, career workshop, and career assessment) in high school, measured by the HSCIRS, predict an individual's dysfunctional career thoughts, measured by the CTI?

Hypothesis: The extent of age of diagnosis, ADHD stigma, and the extent of participation in career interventions all capture significant variation in the prediction of dysfunctional thoughts.

For this research question, I conducted a multiple regression analysis to determine the prediction that age of diagnosis, stigma of one's ADHD diagnosis, and level of participation in career interventions has on dysfunctional career thoughts. For this analysis, 66 participants completed the age of diagnosis question, the ASQ, and the HSCIRS; therefore, 42 participants were excluded. I hypothesized that age of diagnosis, ADHD stigma, and the extent of participation in career interventions would account for variance in dysfunctional thoughts because the lower the age of diagnosis, the higher the stigma; and the less participation in high school career interventions, the higher the dysfunctional thoughts. The ASQ scale predicted an individual's dysfunctional career thoughts, $B = .540$, $p = .000$. The HSCIRS was $B = -.045$, $p = .675$ and an individual's age of diagnosis was $B = -.021$, $p = .842$, and each were nonsignificant.

Although ASQ was the significant variable, an individual's age of diagnosis and level of high school participation variables were found to be nonsignificant findings. Age of diagnosis was not related to dysfunctional career thoughts (see Table 13 for the correlations).

The correlation between age of ADHD diagnosis and dysfunctional career thoughts was $r = .002$, $p = .842$. For these two variables, there was no relationship found and the finding was nonsignificant. ADHD stigma and dysfunctional career thoughts had a positive relationship ($r = .542$, $p = .000$), with an R^2 value of 29.4%. The higher the ADHD stigma, the higher the dysfunctional career thoughts. Additionally, ADHD stigma is the only significant predictor of dysfunctional thoughts.

The correlation between level of high participation of career interventions and dysfunctional career thoughts was $r = -.084$, $p = .675$. In this case, a relationship was not found and the findings were nonsignificant. Table 12 shows that the linear regression model with one predictor variable explaining approximately 29.6% of the variance of dysfunctional career thoughts which is significant at the .00 level. Table 13 shows that only ADHD stigma is a significant predictor of dysfunctional career thoughts. This is demonstrated by the fact that ADHD stigma is the only predictor that has a significant partial correlation (.540) with Dysfunctional Career Thoughts. ADHD stigma is the only predictor that explains a significant amount of variance of dysfunctional career thoughts.

ADHD stigma was the only significant finding, and a significant main effect was found for this variable [$F(3, 63) = 8.839$, $p = .000$; $R = .544$, $R^2 = .296$ or 29.6%] (see Table 12). However, the hypothesis was not supported because there was a significant variation captured by ADHD stigma, but not of age of diagnosis and level of high school participation of career interventions.

Table 12

Linear Regression Model

Model	R	R ²	Adjusted R ²	Std. error of the estimate	Change statistics				
					R ² change	F change	df1	df2	Sig. F change
1	.544(a)	.296	.263	23.23707	.296	8.839	3	63	.000

Table 13

Partial Correlations for All Three Variables

Model	Unstandardized Coefficients		Standardized coefficients	T	Sig.	95% confidence interval for B		Correlations		
	B	Std. error	Beta			Lower bound	Upper bound	Zero-order	Partial	Part
1(Constant)	20.208	10.073		2.006	.049	.079	40.336			
ADHD Stigma Questionnaire	.846	.166	.540	5.088	.000	.514	1.178	.542	.540	.538
-High School Career Interventions Rating	-.336	.798	-.045	-.421	.675	-1.931	1.259	-.084	-.053	-.044
-ADHD age	-.079	.395	-.021	-.200	.842	-.868	.710	.002	-.025	-.021

Summary

In this chapter, I highlighted the sample demographic data, presented the research questions, hypotheses, and results. Several key findings from this study included that age of first diagnosis was not predictive of dysfunctional thoughts, whereas ADHD stigma was predictive of dysfunctional thoughts. Additionally, ADHD stigma captured the only significant variation in dysfunctional career thoughts, whereas age of diagnosis and participation of high school career interventions did not.

Chapter 5:

Discussion

In this chapter, I present a summary of the results according to each research question and hypothesis. I highlight a discussion of the implications of results and limitations. Finally, I share recommendations of the study for practice and research.

Summary of Results

Question 1. To what extent does chronological age of first diagnosis predict the occurrence of dysfunctional career thoughts, as measured by the CTI among college students with ADHD?

The results from the correlation did not support a relationship between age of first diagnosis and dysfunctional career thoughts. Specifically, I found a nonsignificant correlation ($r = .027, p = .818$) between the CTI total score and the age of ADHD diagnosis. Therefore, age of ADHD diagnosis was not significantly related to dysfunctional career thoughts and the hypothesis was not supported. These results did not support the initial hypothesis. I thought age would predict dysfunctional thoughts because the severity of ADHD is more pervasive in the earlier stages of development, and the disorder negatively impacts those diagnosed in their childhood for a longer period of time throughout the developmental course. This nonsignificant result suggests that chronological age is not an important factor, whereas other factors such as ADHD stigma have more of an impact on dysfunctional career thoughts.

Question 2. To what extent does the ASQ predict the occurrence of dysfunctional career thoughts, measured by the CTI?

I found a positive relationship ($r = .538, p = .000$) between the two scales (i.e., ASQ and CTI), and the results were significant. ADHD stigma was related to dysfunctional career

thoughts. I explored the construct scales of the CTI, and found that the correlation between the DMC scale and the ASQ is $r = .464, p = .00$, whereas the correlation between the CA scale and the ASQ is $r = .495, p = .00$. Additionally, the correlation between EC and the ASQ is $r = .509, p = .00$. Whereas EC had the highest correlation with ASQ, all three construct scales (i.e., CA, EC, and DMC) significantly correlated with ADHD stigma. The higher the ADHD stigma, the higher the dysfunctional career thoughts; therefore, the hypothesis was supported.

Question 3. To what extent does age of diagnosis, the stigma of one's ADHD diagnosis, measured by the ASQ, and an individual's level of participation in career interventions (i.e., individual counseling, group counseling, career workshop, and career assessment) in high school, measured by the HSCIRS, predict an individual's dysfunctional career thoughts, measured by the CTI?

The correlation between age of ADHD diagnosis and dysfunctional career thoughts was $r = .002, p = .842$. I found no relationship between these two variables as the finding was nonsignificant. ADHD stigma and dysfunctional career thoughts had a positive relationship ($r = .542, p = .000$) and the finding was significant. The correlation between level of high participation of career interventions and dysfunctional career thoughts was $r = -.084, p = .675$. In this case, there was no relationship found. Because ADHD stigma had the only correlation, the hypothesis was not supported.

Discussion and Implications of Results

Although one study examined the relationship between ADHD and dysfunctional career thoughts (Painter et al., 2008) and another study examined disabilities and dysfunctional career thoughts (Dipeolu et al., 2002), the current study contributed to the literature by examining dysfunctional career thoughts and age of first ADHD diagnosis. Painter et al. (2008) explored the

impact ADHD symptoms had on dysfunctional career thoughts (total score) among 81 adult participants. The results reported significance for ADHD symptoms and dysfunctional career thoughts total score at .20, which means that 20% of the variation of dysfunctional thoughts is accounted for by ADHD symptoms, and ADHD symptoms were predictive of dysfunctional thoughts (Painter et al., 2008). Dipeolu et al. (2002) investigated the relationship between dysfunctional career thoughts and adjustment to disability among 153 college students with learning disabilities who attended a large southern university. Results indicated a correlation between scores on the CTI and on the Adapted Reaction to Impairment and Disability Inventory Adjustment scale (Dipeolu et al., 2002). The correlations were small between that scale and the CTI total ($r = .31, p < .001$; Dipeolu et al., 2002). Although researchers found evidence that ADHD symptoms have an effect on dysfunctional career thoughts (Painter et al., 2008), and a relationship exists between dysfunctional career thoughts and adjustment to one's disability (Dipeolu et al., 2002), these results are not consistent with the current study because I found that the relationship between dysfunctional career thoughts and age of ADHD diagnosis was nonexistent ($r = .027, p = .818$). Furthermore, these studies are inconsistent because each study looked at three distinct constructs (i.e., age of diagnosis, ADHD symptoms, and disability adjustment) along with dysfunctional career thoughts.

Researchers believe ADHD manifests differently in children, adolescents, and adults (Ingram et al., 1999). The severity of ADHD symptoms decline as an individual progresses through each stage of development (Ingram et al., 1999). Hart et al. (1995) examined the developmental changes in a sample of 106 boys (aged 7 to 12) who were clinically referred for having met the ADHD diagnostic criteria. Although symptoms of inattention continued to be displayed among the boys as they got older, there was a decrease in hyperactivity impulsivity.

The mean numbers of hyperactivity impulsivity symptoms in Year 1 ($M = 6.8$), Year 2 ($M = 6.1$), Year 3 ($M = 6.1$), and Year 4 ($M = 5.7$) indicated a decrease in hyperactivity-impulsivity symptoms during the course of 4 years (Hart et al., 1995). Because the severity of ADHD is more pervasive in the earlier stages of development, and the disorder negatively impacts those diagnosed in their childhood for a longer period of time throughout the developmental course, I thought age would predict dysfunctional thoughts in the college years.

Overall, the results of the study showed no significant relationship between age of diagnosis and dysfunctional career thoughts. This outcome suggests an individual's age of first diagnosis does not impact dysfunctional career thoughts. Additionally, although I hypothesized that an earlier diagnosis would predict higher dysfunctional thoughts because of what has been previously reported about the impact ADHD has in the earlier stages of development, the results showed that age was not a significant factor in predicting dysfunctional career thoughts.

Painter et al. (2008) explored the significance of ADHD symptoms and dysfunctional career thoughts total score at .20, which means that 20% of the variation of dysfunctional thoughts is accounted for by ADHD symptoms, and it is likely for an individual with ADHD symptoms to have dysfunctional career thoughts. If ADHD symptoms are likely to impact dysfunctional career thoughts, then the stigma that goes along with the disorder would also impact dysfunctional career thoughts. Although the literature was scant regarding ADHD stigma and symptoms, one study investigated the perceptions of children's symptoms by evaluating their views on problem behaviors and the stigma that goes along with the disorder. Weiner et al. (2012) studied children's attitudes of their own ADHD symptoms in a comparison sample of 9- to 14- year olds ($N = 152$) with and without ADHD. Results indicated that children with ADHD ($M = 12.00$) were more inclined than their non-ADHD peers ($M = 5.53$) to believe that their most

problematic behavior was stigmatizing (Weiner et al., 2012). Additionally, there was a negative relationship found between stigmatization for the ADHD disorder, an individual's view of Behavioral Conduct ($r = -.42, p = .01$), and Global Self-Worth ($r = -.45, p = .01$) in the ADHD sample, which meant that the higher their stigma perceptions, the lower their behavioral self-concept and self-esteem (Weiner et al., 2012).

Results of the study indicated a positive relationship between the ASQ total score and CTI total score, and ASQ total score accounted for a significant amount of the variance in the CTI total score. This result suggests that individuals with higher levels of ADHD stigma would have higher levels of dysfunctional career thoughts and therefore, are less likely to navigate their career problems successfully. If an individual does have a negative perception of themselves and how others perceive them (Kellison et al., 2010), it is likely they would not be able to successfully navigate the decision-making process. Because ADHD stigma was the most significant finding with dysfunctional career thoughts, each individual construct scale of the CTI was important to interpret. Each construct (i.e., CA, EC, and DMC) was found to be positive and significant. Having higher levels of ADHD stigma meant that individuals would experience anxiety ($r = .495, p = .00$) and confusion ($r = .464, p = .00$) when making career decisions. Additionally, the messages of significant others when making career decisions had the most impact on ADHD stigma ($r = .509, p = .00$). The less capable an individual was in balancing their own thoughts with the input of significant others (Sampson et al., 1996b), the higher their levels of ADHD stigma.

ADHD stigma was the only significant predictor of dysfunctional career thoughts (29.4%), whereas age of ADHD diagnosis and high school participation were not predictors (.1% and .1%, respectively). This finding suggests that individuals with high ADHD stigma are more

likely to experience problems when making career decisions, whereas age of diagnosis and previous high school participation in career interventions has no significant impact on career decision making and problem solving.

Limitations

Several limitations are inherent in this study. Because this survey was sent to each student's e-mail address, it may have been easy for them to disregard the survey due to the amount of e-mails they receive each day, thereby resulting in a low number of participants (Evans & Mathur, 2005). Also, because they did not have access to a live facilitator, the data may have been unclear due to their own interpretations of each question (Evans & Mathur, 2005). Additionally, one cannot generalize to other ethnicities because the majority of participants were Caucasian. Participants' ability to complete the survey honestly and accurately could be questioned, due to individuals' inclinations to use responses that appeared socially desirable or were accompanied by a limited knowledge of diagnostic history (Tourangeau & Yan, 2007). Reading ($n = 26$), mathematics ($n = 10$), and writing ($n = 8$) were the disabilities that accompanied the ADHD disorder. Twenty eight participants had anxiety, 10 participants had depression, and 29 had both. A limitation of this study was that because this population had comorbidities, one cannot generalize to the individuals with only ADHD. Women were more inclined to respond to the survey than men. This may have been the case because women tend to be more organized and may have been more likely to be influenced by the incentive of the gift card. Moreover, a social desirability bias was likely due to being reluctant toward disclosing personal information such as their own perceptions of ADHD stigma and dysfunctional career thoughts (Tourangeau & Yan, 2007). An individual's inability to remember all career interventions in which they participated while attending high school and their age of diagnosis

are also limitations. Because some students with ADHD were not registered at each of the offices of disabilities, the true representation of this specific population may have been affected.

Recommendations for Practice and Research

The study examined several constructs to determine whether they were predictors of dysfunctional career thoughts. The results indicated that age of first diagnosis and dysfunctional career thoughts were not significantly related, whereas ADHD stigma and dysfunctional career thoughts were found to be significantly related. Additionally, an individual's level of high school participation was not significantly related to dysfunctional career thoughts. Because ADHD stigma was the most significant predictor of dysfunctional thoughts, recommendations for practice will be aligned accordingly.

Career counseling practitioners and disability professionals will want to apply several interventions for the individual with high levels of ADHD stigma and dysfunctional career thoughts based on these findings. When professionals encounter an individual with ADHD, their level of stigma can be assessed using the ASQ (Kellison et al., 2010). As student choose the *strongly agree* and *agree* items, professionals can ask students to discuss why they have provided these answers, then explore each question further. Professionals can then implement reframing exercises. For example, "People who have ADHD feel guilty about it" (Kellison et al., 2010, p. 368) can be reframed by stating that "Individuals with ADHD may have unique traits such as a creative mindset and having an abundance of energy." Promoting the student's acceptance of ADHD (Dipeolu, 2011) is one strategy career counselors and disability professionals can use when talking to a student who has a high levels of ADHD stigma. Helping the student accept their condition may allow them to move forward and be their own advocates to get the help they need. Instilling hope should be one of the most important aspects in sessions

with a student because it allows the student to realize they can be successful in their endeavors (Dipeolu, 2011). Additionally, empathy and support will be invaluable to helping students face their condition and the challenges that come with having ADHD (Dipeolu, 2011). When students believe university professionals can truly understand what they are feeling, it could empower the student to become successful. Students who have symptoms of ADHD often think nothing is right with them (Dipeolu, 2011). This type of thinking would certainly cause them to not let others know and they may feel ashamed about their disorder. Therefore, counselors should work with their negative thoughts to get to the root of the problem (Dipeolu, 2011).

As previously mentioned, the higher the dysfunctional career thoughts, the lower their readiness is for career decision making (Sampson et al., 2000). This lack of readiness could indicate the need for individual case-managed services by career counseling professionals to help address these concerns. Because the ASQ is significantly related to the CTI, individuals with higher levels of ADHD stigma may find individual case-managed services to be helpful. According to Sampson et al. (2000), the student with low readiness will need a considerable amount of help from the career-center professional when participating in individual case-managed services. Individual case-managed services consist of one-on-one counseling, small-group career-course interactions, and long-term group counseling, in which career and mental health issues are intertwined (Sampson et al., 2000). Career services practitioners will also want to incorporate the CTI workbook (Sampson et al., 1996c). The CTI workbook allows individuals to reframe their negative thoughts into more positive thoughts (Sampson et al., 1996c). For example, "I need to choose a field of study or occupation that will please the important people in my life" (Sampson et al., 1998, p.131) can be reframed by saying "What are yours and your significant other's meaning of success?" If they are different for the student, then the career

counseling professional can say “What about considering a middle ground for both you and the important people in your life that would be of interest to you?”

Counselor educators and supervisors are also significant in this process. Their knowledge of ADHD stigma and dysfunctional career thoughts will be important in helping counselors in training with these individuals. It would be important for counselor educators and supervisors to be aware of the complexities that an individual with ADHD stigma and dysfunctional career thoughts exhibits; without understanding the struggles of these individuals it would be difficult to help the counselors in training navigate this process by themselves. Additionally, it would be helpful for counselor educators and supervisors to have a good grasp of the cognitive theoretical orientation. Because the findings of ADHD stigma and dysfunctional thoughts were found to be significant, and positive cognitions are integral to helping these individuals get better, it is very important for counselor educators and supervisors to have this knowledge base.

Below, I offer several recommendations for future research. This study can be replicated with high school students with ADHD and results can be compared to the current study on college students. It may be that there would be differences found between the high school and college populations because the high school students could potentially have more individuals who were diagnosed in the earlier stages of development than the college students. In turn, this could have an impact on their dysfunctional career thoughts. If that were the case, it would provide comprehensive information on what interventions students needed and what counselors can do to assist them.

Another suggestion is to replicate this study comparing samples from public and private institutions. It may be that the type of institution students attend would impact their career thinking and their ADHD stigma, and students would have different levels of high school

participation. If so, it would be helpful to study what university professionals can do to help students become successful at public and private institutions. It would also be interesting to examine the relationships between ADHD stigma, ADHD symptoms, and vocational identity. Researchers already know that ADHD stigma and ADHD symptoms impact dysfunctional thoughts. However, it would be interesting to discern the impact each of these variables has on vocational identity or one's certainty of their career goals (Holland, Daiger, & Power, 1980). If a relationship was found, not only would that add to the literature, but it would also be helpful to assist these individuals to get the help they need. In addition, examining the relationship between career decision-making self-efficacy and ADHD stigma may prove useful. Because researchers already know that college students with ADHD may be less confident in their decision-making ability in making educational and vocational choices (Norwalk et al., 2009), it would be interesting to find out how much of their ADHD stigma affects their career decision-making self-efficacy. Having the confidence to follow through with their career decisions may be impacted by the perception they have of themselves and how others perceive them. This information will be helpful to assist these individuals to get the proper assistance.

Summary

This study examined the relationship between age of diagnosis and dysfunctional career thoughts. Regression analyses indicated that age and level of high school participation was not significantly related to dysfunctional career thoughts, whereas ADHD stigma was significantly related to dysfunctional career thoughts. This information provides a significant contribution to the literature.

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Appendix A: Invitation to Participate (E-mail to students)

Dear Students,

My name is Jessica Caolo, and I am a doctoral candidate at Virginia Tech in Counselor Education and Supervision. As part of my curriculum requirements, I am conducting a study that examines the relationship between the age of one's diagnosis and career thoughts among college students with ADHD. This study has been approved for distribution by the Institutional Review Board (IRB) at Virginia Tech.

I am inviting you to participate in this study because you are a student who is registered with the Office of Disabilities. Your participation in this study is completely voluntary, and there are no costs or benefits from your participation in this study. However, your responses will be helpful in understanding the relationship between age of one's diagnosis and career thoughts. Having knowledge of the impact of the age of diagnosis on career thoughts may provide useful information in the assessment of ADHD and the development of appropriate interventions to facilitate career problem solving and decision-making.

If you choose to participate in this study, you will be asked to complete an online questionnaire. The survey will take about 30-45 minutes to complete. Furthermore, you will be asked to provide selected information about yourself—including the timing of your diagnosis. Participants in this study must be 18 years or older to participate. All data are anonymous and will be located on a secure server. Additionally, after your participation in this study, you will have an opportunity to win \$100 prize in a drawing. The odds of winning the \$100 prize are 2 in 339. If you would like to be considered for the drawing, please access the website provided at the end of the survey.

By participating in this particular study, you are giving the researcher permission to use your responses solely for research purposes. By continuing and completing the survey, you are indicating your consent to participate in the research study. Also, if you would like a summary of the results, please email me, and I will send you the results once the study is complete. You can access the questionnaire at the following secure web address:

<https://www.surveymonkey.com/s/GGNNMB5>

Please feel free to e-mail me at jcaolo@vt.edu if you have any questions regarding this study. Also, if you would like a summary of the results, please email me, and I will send you the results once the study is complete.

Thank you for your participation.

Sincerely,

Jessica Caolo, Ed.S.
Doctoral Candidate, Virginia Tech

Dr. Gerard Lawson
Associate Professor
Counselor Education Program
Virginia Tech—Blacksburg

Appendix B: Invitation to Participate (E-mail to students)

Dear Students,

My name is Jessica Caolo, and I am a doctoral candidate at Virginia Tech in Counselor Education and Supervision. As part of my curriculum requirements, I am conducting a study that examines the relationship between the age of one's diagnosis and career thoughts among college students with ADHD. This study has been approved for distribution by the Institutional Review Board (IRB) at Radford University.

I am inviting you to participate in this study because you are a student who is registered with the Disability Resource Office. Your participation in this study is completely voluntary, and there are no costs or benefits from your participation in this study. However, your responses will be helpful in understanding the relationship between age of one's diagnosis and career thoughts. Having knowledge of the impact of the age of diagnosis on career thoughts may provide useful information in the assessment of ADHD and the development of appropriate interventions to facilitate career problem solving and decision-making.

If you choose to participate in this study, you will be asked to complete an online questionnaire. The survey will take about 30-45 minutes to complete. Furthermore, you will be asked to provide selected information about yourself—including the timing of your diagnosis. Participants in this study must be 18 years or older to participate. All data are anonymous and will be located on a secure server. Additionally, after your participation in this study, you will have an opportunity to win \$100 prize in a drawing. The odds of winning the \$100 prize are 2 in 339. If you would like to be considered for the drawing, please access the website provided at the end of the survey.

By participating in this particular study, you are giving the researcher permission to use your responses solely for research purposes. By continuing and completing the survey, you are indicating your consent to participate in the research study. Also, if you would like a summary of the results, please email me, and I will send you the results once the study is complete.

You can access the questionnaire at the following secure web address:

<https://www.surveymonkey.com/s/GGNNMB5>

Please feel free to e-mail me at jcaolo@vt.edu if you have any questions regarding this study. Also, if you would like a summary of the results, please email me, and I will send you the results once the study is complete.

Thank you for your participation.

Sincerely,

Jessica Caolo, Ed.S.
Doctoral Candidate, Virginia Tech

Dr. Gerard Lawson
Associate Professor
Counselor Education Program
Virginia Tech—Blacksburg

Appendix C: Permission from Publisher

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Appendix D: Instrument**Demographic Questions**

1. Please list the initials of your name here

2. Age

3. Education

- Freshman
 Sophomore
 Junior
 Senior

4. Major

5. Are you male or female?

- Male
 Female

6. Are you Hispanic or Latino Origin?

- Yes
 No

7. What is your race?

- American Indian or Alaska Native
 Asian
 Black or African American
 Native Hawaiian or Other Pacific Islander
 Multiracial
 White

Diagnosis Questions

***1. What age were you officially diagnosed as having ADHD?**

2. When do you recall first having ADHD symptoms?

3. Who diagnosed your ADHD?

Psychologist

Therapist

Psychiatrist

Physician

Other

4. Have you ever been diagnosed with a learning disability (i.e., reading, writing, and math)? If so, which learning disability have you been diagnosed with?

5. Do you have Anxiety or Depression? Or both?

6. Are you currently on medication? If so, how long have you been on medication?

Thank You

Thank You for your participation! If you would like to be considered for the drawing, please go the following website: <https://forms.hush.com/cjessica>. Here, you will fill out a secure contact form. Be sure to only include your "email address" in the Email Address section, and "ADHD Survey" in the Comments section. When you submit this form, any information you entered will be encrypted before being delivered to the researcher. Your email address and data will be in no way linked at any time. You will be contacted if you win, so that you may receive your prize.

Appendix E: Follow-up E-mail to Students

Dear Students,

I wanted to take a moment to say thank you to those of you who completed the survey for my research study entitled, “Relationship between the age of one’s diagnosis and career thoughts among college students with ADHD.” For those of you who have not yet had a chance to participate, I will provide the link again in this e-mail.

If you choose to participate in this study, you will be asked to complete an online questionnaire. The CTI survey will take about 30-45 minutes to complete. Furthermore, you will be asked to provide selected information about yourself—including the timing of your diagnosis. All data are anonymous and will be located on a secure server.

By participating in this particular study, you are giving the researcher permission to use your responses solely for research purposes. You can access the questionnaire at the following secure web address:

<https://www.surveymonkey.com/s/GGNNMB5>

Please feel free to e-mail me at jcaolo@vt.edu if you have any questions regarding this study. Also, if you would like a summary of the results, please email me, and I will send you the results once the study is complete.

Thank you for your participation.

Sincerely,

Jessica Caolo, Ed.S.
Doctoral Candidate, Virginia Tech

Dr. Gerard Lawson
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