

**Job Satisfaction, Self-Efficacy, and Work Environment among Military Veterans with
Attention-Deficit/Hyperactivity Disorder**

by

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Abstract

The current study examined the moderating effects of confidence to make career decisions and job environment on the relationship between ADHD symptoms and job satisfaction among military veterans. A total of 263 participants completed a demographic questionnaire, the ADHD Self-Report Scale, Career Decision Self-Efficacy Short-Form, Minnesota Satisfaction Questionnaire Short-Form, Michigan Alcohol Screening Test, Drug Abuse Screening Test-10, and Center for Epidemiologic Studies Depression Scale. A hierarchical regression with ADHD symptoms, career decision-making self-efficacy (CDMSE), and work environment predicting job satisfaction after controlling for symptoms of depression revealed that symptoms of ADHD significantly predicted job satisfaction after controlling for depression and CDMSE further improved the explanatory power of the predictive model. However, the relationship between ADHD symptom level and job satisfaction was not significantly more negative for participants with lower levels of CDMSE compared to those with higher levels of CDMSE after controlling for depression. A 2x2 between subjects ANOVA, used to examine differences in job satisfaction as a function of ADHD status and job environment, did not produce significant differences in the importance of work environment for job satisfaction as a function of ADHD symptoms. An additional hierarchical regression predicting job satisfaction revealed a marginally significant interaction between CDMSE and realistic work environment among participants with ADHD after controlling for depression. Helping professionals can improve the vocational adjustment of veterans by assessing attention deficits and utilizing interventions designed to increase CDMSE.

Future research needs to examine the impact of the six Holland types on veteran career satisfaction separately to better understand their impact on veteran vocational development.

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I. Introduction

Career satisfaction has a reciprocal relationship with personal satisfaction such that people with higher levels of job satisfaction experience higher levels of personal satisfaction and vice versa (Zedeck & Mosier, 1990). According to career theory, people are satisfied with their jobs when they are able to feel efficacious in their work (Lent & Brown, 2006) and the degree of congruence between one's personality and his or her work environment also contributes to satisfaction levels (Holland, 1997). People with ADHD often experience low career satisfaction which has been largely attributed to inattentive symptoms of ADHD that contribute to low confidence for academic and vocational tasks (Biederman et al., 2006). Behavioral treatment literature for ADHD includes use of structured environments to improve the adaptive functioning of people with ADHD (Safren, 2006; Young, 1999). In fact, a common factor among adults with ADHD who experience occupational success is a sense of control in their environment (Gerber, Ginsberg, & Reiff, 2001). This notion has been echoed by studies of vocational adjustment among people with ADHD, such that they are likely to experience more satisfaction in structured environments that enable them to feel effective (Nadeau, 2005; Painter, Prevatt, & Wells, 2008). As such, it logically follows that structured work environments may foster positive occupational outcomes for adults with ADHD since such environments correspond to their needs, making them more able to experience higher self-efficacy, which is associated with increased job satisfaction.

The military work environment has been recommended for people with ADHD because its structured nature is conducive to their vocational satisfaction (Friedman, Blaschke, Klam, & Stein, 2006). In 2004, the Department of Defense passed a waiver that permitted people with

ADHD, who had either graduated from high school or held a job for at least one year, to enlist in the military (Krauss, Yuanzhang, Russel, & Powers, 2006). While the number of people in the military with ADHD is unknown, the number may exceed that of those who enlisted after 2004 because people with undiagnosed ADHD may have joined both before and after the waiver was enacted. The educational characteristics of enlisted military ranks support this assertion as they are similar to the academic outcomes common in adults with ADHD in that many do not pursue college (Able et al., 2007; Barkley, 2002; Biederman et al., 2006; Segal & Segal, 2004). Given the possibility of a substantial number of military personnel with diagnosed and undiagnosed ADHD, the study of constructs that may contribute to job satisfaction with their post-military employment among this population could extend the understanding of vocational adjustment beyond that of those individuals with ADHD who pursue college. Because the study of military personnel by non-military entities is restricted, one way to access those who joined the military is to study constructs of interest among veterans as they attempt to transition into post-military work environments.

Attention-Deficit/Hyperactivity Disorder

Attention-deficit/hyperactivity disorder is characterized by a persistent pattern of inattention with or without hyperactivity that causes academic and social impairment in children by the age of seven (American Psychiatric Association, 2000). As people with ADHD mature, hyperactive symptoms tend to decline while inattentive symptoms persist into adulthood (Adler, 2004; Davidson, 2008; Millstein et al., 1997; Nadeau, 2005). As such, adolescents and adults with ADHD commonly experience difficulty with tasks that require executive functioning resulting in poor time management skills, organizational problems, difficulty with self-regulation, and a need for structure (Nadeau, 2005).

In addition to executive functioning deficits, people with ADHD often experience problems in multiple domains that can contribute to poor adjustment. For example, attention-deficit/hyperactivity disorder is highly comorbid with anxiety, mood, substance dependence, and antisocial disorders (Biederman, 2004; Kessler et al., 2006; Millstein et al., 1997). Problems associated with ADHD also contribute to decreased positive affect; increased negative affect; and interpersonal problems such as difficulty maintaining friendships, separation, divorce, and antisocial behaviors (Able, Johnston, Adler, & Swindle, 2007; Biederman et al., 2006; Knouse et al., 2008). Like children with ADHD, adolescents with ADHD experience academic problems including lower grades, grade retention, and not graduating from high school (Able et al., 2007; Barkley, 2002; Biederman et al., 2006). Consistent with what would be expected given these difficulties, few adults with ADHD enter college and even fewer graduate (Able et al., 2007; Barkley, 2002; Biederman et al., 2006). Academic impairment leads to occupational dysfunction as adults with ADHD report less employment, less full-time employment, frequent job changes, more difficulty keeping jobs as a result of ADHD symptoms, and lower job satisfaction compared to adults without attention deficit problems (Biederman et al., 2006).

Job Satisfaction

Job satisfaction refers to the global feelings about one's job or feelings about particular job aspects or working conditions, such as the work itself, rewards, context, and people (Locke, 1976). Job satisfaction is important for psychological adjustment as work and personal lives are not separate entities, but rather interrelated and intertwined domains that have reciprocal effects on each other (Zedeck & Mosier, 1990). Satisfaction with one's career choice is crucial to human happiness since work affects how one spends most of the day and the kind of people with whom one socializes (Krumboltz, 1993; Bandura, Barbaranelli, Caprara, & Pastorelli, 2001). As

such, a satisfying work life has spillover effects on one's personal life (Karasek & Theorell, 1990). An unsatisfying work life, on the other hand, has negative spillover effects on one's personal life and is associated with health and psychological problems (van Dijkhuizen & Reiche, 1980; Decker & Borgen, 1993; Karasek & Theorell, 1990; Kohn & Schooler, 1973; Sharit & Salvendy, 1982). These points converge to highlight how career is an important component in the lives of people with ADHD as their work likely influences the quality of their lives both inside and outside of their work environment.

Self-Efficacy

Self-efficacy is a central tenant of Albert Bandura's (1977) social cognitive theory. Self-efficacy is the belief, or confidence, that one can successfully execute a behavior required to produce an outcome such that the higher the level of self-efficacy, the more an individual believes he or she can execute the behavior necessary to obtain a particular outcome (Bandura, 1977). One tends to avoid situations believed to exceed his or her abilities and get involved, without hesitation, in activities for which he or she feels capable (Bandura, 1977). A central idea posed in social cognitive theory is that success experiences raise self-efficacy but repeated failures lower self-efficacy. Moreover, enhanced self-efficacy secondary to repeated successes often generalizes to new situations (Bandura, 1977). Self-efficacy has been studied in relation to a wide variety of behaviors, including vocational development (Lent & Brown, 2006; Lent, Brown, & Hackett, 1994). Social cognitive career theory (SCCT; Lent, Brown, & Hackett, 1994) was developed out of this work to provide a conceptual framework to explain how career and academic interests develop, how career choices are made, and how career-related performances are achieved. According to SCCT, the academic difficulties that people with

ADHD face from childhood through adolescence are likely to result in low self-efficacy for and avoidance of academic and vocational endeavors.

Career-Decision Making Self-Efficacy

Career decision-making self-efficacy (CDMSE) is a construct that was developed by applying Bandura's (1977) self-efficacy construct to career decision making behavior. As such, CDMSE is defined as the belief that one can successfully complete a task or tasks necessary to make a career decision (Taylor & Betz, 1983). Career decision-making self-efficacy became an important construct in vocational study after it was shown to help explain gender differences in career behaviors as women tended to have lower levels of CDMSE compared to men which were associated with career indecision as well as anxiety for and avoidance of career-related behaviors (Betz & Hackett, 1981). Research further established the relevance of CDMSE as it was repeatedly shown to have a positive relationship with numerous adaptive career-related behaviors including active engagement in career exploration activities (Blustein, 1989), career decidedness (Taylor & Popma, 1990), vocational identity (Robins, 1985), and career maturity (Luzzo, 1993). The construct has also helped explain approach and avoidance of career-related behaviors among high school students (Gati & Saka, 2001), college students (Taylor & Betz, 1983), and students with disabilities (Luzzo, Hitchings, Retish, & Shoemaker, 1999). In a study of CDMSE among college students with and without disabilities, those without disabilities reported higher levels of CDMSE than both students with learning and non-learning disabilities (Luzzo, Hitching, Retish, & Shoemaker, 1999). When compared with college students without ADHD, college students with ADHD have lower career decision-making self-efficacy (Norvilitis, et al., 2010; Norwalk, et al., 2009). As such, CDMSE can facilitate the study of career satisfaction among military veterans with symptoms of ADHD.

Work Environment

Another construct relevant to the study of work satisfaction is work environment. Career development theories posit that the environment in which one works affects the degree of job satisfaction he or she experiences (Dawis & Lofquist, 1984; Holland, 1997). A reciprocal relationship is thought to exist between people and their environments, such that people influence their environment and environments influence people (Walsh, Price, & Craik, 1992). Vocational theories of person-environment fit posit that people experience higher job satisfaction when they work in environments that are congruent with their personalities (Holland, 1997) and when the degree of fit between the needs and demands of both the person and the environment are maximized (Dawis & Lofquist, 1984). Vocational literature points to core characteristics of work environments that can affect the degree of job satisfaction based on the needs of the individual (Kulik, Oldham, & Hackman, 1987). The characteristics include the degree to which a work environment provides opportunities to use a variety of skills and talents, to complete tasks from beginning to end with visible outcomes, to provide a substantial impact on the lives of others, to feel autonomous, and to receive direct and clear feedback about the effectiveness of one's performance (Kulik, Oldham, & Hackman, 1987). While there is a dearth of scholarly literature pointing to the characteristics of work environments that are most conducive to job satisfaction among adults with ADHD, treatment literature suggests that they are likely to function better in environments with structure and predictability (Safren, 2006; Young, 1999) that enable them to experience a sense of control in their environment (Gerber, Ginsberg, & Reiff, 2001).

Statement of the Problem

Research among college students with ADHD has revealed that those with higher ADHD symptom levels, particularly inattentive symptoms, and lower levels of career decision-making self-efficacy have poorer adjustment to college (Norvilitis, et al., 2010; Norwalk, et al., 2009). Since many people with ADHD do not attend or finish college (Able et al., 2007; Barkley, 2002; Biederman et al., 2006), it is unknown whether these results generalize to career-related satisfaction among adults with ADHD who do not pursue college. As such, there is a need to understand the types of work places that may foster job satisfaction among people with ADHD who do not attend college. As previously mentioned, the military has been suggested as an environment that may be conducive to success among people with ADHD because of its structured nature (Friedman et al., 2006). In fact, since the Department of Defense (DOD) lifted a ban that prohibited citizens with ADHD from joining the military in 2004, research has concluded that adults with ADHD are able to function as well as their peers without ADHD in the military (Krauss, Yuanzhang, Russel, & Powers, 2006). The structured environment of the military may foster functional vocational outcomes for adolescents and adults with ADHD, such as high levels of self-efficacy, congruence, and job satisfaction. As such, it is possible that a large number of these individuals are attracted to military careers (Friedman et al., 2006). However, research about the career adjustment of adults with ADHD (Biederman, 2004) suggests that if and when these individuals transition out of the military and pursue jobs or careers in the civilian world, they may experience challenges above and beyond what veterans without ADHD would face. At this time, there is a dearth of empirical research on how ADHD symptom levels affect job satisfaction among military veterans, or of the unique contribution of career decision-making self-efficacy and work environment on their job satisfaction levels. The purpose of this study is to explore the relationship between ADHD symptom level and job

satisfaction among military veterans, as well as how the variables of career decision-making self-efficacy and work environment affect that relationship.

Significance

Exploring the relationship between ADHD symptom level and job satisfaction among military veterans, as well as how career decision-making self-efficacy and work environment affect that relationship can provide helpful information to psychologists, counselors, and other helping professionals who work with veterans experiencing vocational problems. Because individuals within the U.S. society spend substantial portions of their adult lives engaged in work, work is a critical component with regard to one's identity and life satisfaction. There is substantial variation with regard to the particular types of jobs and settings that are most satisfying, with both interests and trait characteristics influencing the degree to which a particular setting may be a satisfactory fit (Holland, 1997). A preference for a predictable and structured work environment is one such factor that influences career/work satisfaction (Gerber, Ginsberg, & Reiff, 2001), and is particularly relevant when considering military career settings. Difficulties associated with symptoms of ADHD may be associated with a preference for military settings that involve structure and supervision that enable people with ADHD to function at their best (Friedman et al., 2006). While those who are most satisfied with their jobs in the military are more likely to re-enlist and stay with the military for the duration of their careers, individuals often must leave the service for a variety of reasons including injury, health problems, disciplinary reasons, and family factors (Segal & Segal, 2004). In fact, most people who enter the armed forces in the United States serve for less than 10 years and separate from the military in their twenties, thirties, and forties, too young to truly retire (Segal & Segal, 2004). Many have desire to learn skills applicable to the civilian labor force in addition for their

motivation to serve (Segal & Segal, 2004). As such, securing jobs or careers after the military is a priority for the many veterans who leave the military and transition into the civilian world (Clemons & Milsom, 2008), a task that may be more difficult when veterans have certain types of psychological difficulties, such as those veterans with ADHD. What is more, the process of obtaining a job does not end with securing a position. Job retention is associated with job satisfaction as one's career affects how he or she spends most of the day, the kind of people with whom he or she socializes, recreation plans, and retirement possibilities (Krumboltz, 1993; Bandura, Barbaranelli, Caprara, & Pastorelli, 2001). People are more likely to remain in jobs that make them happy and leave jobs that make them unsatisfied (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001). As of 2011, the unemployment rate for veterans who served at any time since September 2001 was 12.1 percent, which is higher than the unemployment rate of 8.2 percent as of June 2011 (United States Department of Labor 2012; 2012). While unemployment figures among people with ADHD are unknown, unemployment is a problem heavily cited in research regarding ADHD in adulthood (Biederman et al., 2006; Ramsey, 2010). The proposed study may help to provide some direction about the types of work environments that may help people with ADHD to feel more satisfied, possibly providing a starting point for exploration of career options in career counseling.

Research Hypotheses

1. After controlling for depression, higher levels of attention-deficit hyperactivity disorder symptoms will predict decreased job satisfaction.

Individuals with ADHD experience a number of vocational problems including less employment, frequent job changes, and difficulty keeping jobs that result in less satisfaction in their professional lives (Biederman et al., 2006). These vocational

problems have been linked to inattentive symptoms such as poor time management, difficulty with self-regulation, and a need for structure (Nadeau, 2005).

2. After controlling for depression, career decision-making self-efficacy will predict increased job satisfaction.

2. a. After controlling for depression, career decision-making self-efficacy will predict job satisfaction above and beyond that which would be predicted by ADHD symptoms.

2.b. After controlling for depression, the relationship between ADHD symptom level and job satisfaction will be more negative for participants with lower career decision-making self-efficacy compared to those with relatively higher levels of career decision-making self-efficacy.

Previous research of career beliefs and job satisfaction among people with ADHD indicated that ADHD symptoms predicted confusion around career decision-making and anxiety to commit to specific career choices (Painter, Pevatt, & Welles, 2008). Since self-efficacy for vocational domains predicts job satisfaction (Lent et al., 2005), levels of CDMSE likely have a strong impact on job satisfaction. As such, it may be that the relationship between ADHD and job satisfaction is more negative for those who have lower levels of CDMSE. As such, people with ADHD who have lower levels of CDMSE, have even lower job satisfaction than those with higher levels of CDMSE. If this is the case, career counseling interventions aimed at increasing CDMSE could help people with ADHD to find career paths that lead to higher satisfaction levels.

3. For people with ADHD, those in realistic environments will have greater job satisfaction than those with jobs in other environments, and this pattern of job satisfaction for job environment will differ for people without ADHD.

Vocational research indicates that job satisfaction is strongly associated with person-job fit (Kristof-Brown, Zimmerman, & Johnson, 2005). Realistic work environments may provide a good fit for people with ADHD because they are more likely to involve physical activity, predictability, and structure (Holland, 1997) which are characteristics of environments conducive to positive vocational outcomes among people with ADHD. (Painter, et al., 2008). Realistic environments (Holland, 1997) are less likely to involve sedentary positions, attention to detail, and a lot of paperwork which are problematic for people with ADHD (Nadeau, 2005) compared to investigative, artistic, social, enterprising, and conventional environments.

4. After controlling for depression, career decision-making self-efficacy and realistic work environment will interact to predict job satisfaction among participants with ADHD.

Self-efficacy and person-environment fit are well established constructs in vocational literature that predict job satisfaction (Gore & Leuwerke, 2000; Lent, Brown, & Larkin, 1987; Smith & Fouad, 1999). What is more, these variables have been examined together to better understand how they interact to affect satisfaction levels (Gore & Leuwerke, 2000; Lapan, Boggs, & Morrill, 1989; Smith & Fouad, 1999). As such, it makes sense to examine how the social cognitive variables of this study (CDMSE) and person-environment fit variables (realistic work environment) interact to affect career satisfaction among a veteran population since there is a realistic component to most military jobs (Holland, 1997; U.S. Department of Labor, Bureau of Labor Statistics, 2009). Examination of these variables can improve understanding of important vocational constructs among veterans to enhance awareness of environments and competencies that may compliment their personalities.

Operational Definitions

Attention-Deficit/Hyperactivity Disorder. Attention-Deficit/Hyperactivity Disorder (ADHD) pertained to a combination of inattentive and/or hyperactive/impulsive symptoms that cause academic and social impairment in children by the age of seven as outlined by the *DSM-IV-TR* (American Psychiatric Association, 2000). In studies with adults, the ADHD diagnostic criteria of age seven and younger, is inappropriate as it precludes many people with ADHD symptoms from being diagnosed if the disorder was not recognized in time (Barkley et al., 2002; Faraone et al., 2006; McGaugh & Barkley, 2004). The hyperactive symptoms include the following: fidgeting, getting out of one's seat when expected to remain seated, running around excessively, difficulty awaiting turns, excessive talking, interrupting others, and blurting out answers before questions are completed. The inattentive symptoms include the following: difficulty staying on task, not listening when spoken to, trouble following directions, forgetfulness, and losing items needed for everyday activities. Attention-Deficit/Hyperactivity Disorder symptomatology was measured by the *Adult ADHD Self-Report Scale* (ASRS; Adler, Kessler, & Spender, 2003).

Job Satisfaction. Job satisfaction referred to the global feelings about one's job or feelings about particular job aspects or working conditions, such as the work itself, rewards, context, and people (Locke, 1976). In this study, the terms job, work, and career satisfaction were used interchangeably. Job satisfaction was operationally defined as a total score on the Minnesota Satisfaction Questionnaire-Short-Form (Weiss, Dawis, England, & Lofquist, 1967).

Career Decision-Making Self-Efficacy. Career decision-making self-efficacy was defined as the belief that one can successfully complete a task or tasks necessary to make career decisions (Taylor & Betz, 1983). Career decision-making self-efficacy was operationally

defined as a total score on the Career Decision Self-Efficacy Scale Short-Form (Betz, Hammond, & Multon, 2005).

Work Environment. In the proposed study, work environment referred to the six environmental domains of person-environment fit theory (realistic, investigative, artistic, social, enterprising, and conventional; Holland, 1997). Realistic environments were described as requiring manual and mechanical competencies, as well as interaction with machines, tools, and objects. They demand conforming behavior and reward the display of practical accomplishment. Investigative environments involve the acquisition of knowledge through scholarship or investigation. They demand analytical or intellectual activity aimed at problem-solving or creation and use of knowledge. Artistic environments require innovation or creative ability, as well as the ability to be emotionally expressive in interaction with others. These environments demand imagination in literary, artistic, or musical accomplishments. Social environments require interpersonal competencies and skills in mentoring, treating, healing, and teaching others. Demands of this environment include empathy, humanitarianism, sociability, and friendliness. Enterprising environments require skills in persuasion and manipulation of others. These environments demand initiative in the pursuit of financial or material accomplishment and reward the display of dominance and self-confidence. Conventional environments require clerical competency and skills in meeting precise standards of performance. These environments demand organizational ability and reward conformity and dependability. Realistic, investigative, artistic, social, enterprising, and conventional environments were operationally defined by weighted scores that the investigator assigned to the jobs participants indicated on a demographic questionnaire according to Holland types based on the Dictionary of Holland Occupational Codes (Gottfredson, 1996).

II. Review of the Literature

The purpose of this chapter is twofold: 1) to present a review of literature to explain how the symptoms and problems associated with attention-deficit/hyperactivity disorder (ADHD) can impact career development and 2) to discuss how particular work environments may provide a better fit for those with ADHD that may result in higher levels of job satisfaction. The first section of this chapter will present a review of the research explaining the persistence of ADHD into adulthood and how the disorder affects the quality of life, academic achievement, and occupational functioning of adults. Then, research pointing to adaptive work environments that likely lead to higher levels of job satisfaction for people with ADHD will be discussed with an emphasis on the military environment. The second section of this chapter will present career theories to provide a schema with which to understand how the career development of people with ADHD can influence their job satisfaction. Career theory will then be used to discuss the unique career-related problems that people with ADHD experience and to propose how the military may provide an environment that is conducive to job satisfaction among this population.

Attention-Deficit/Hyperactivity Disorder

Attention-deficit/hyperactivity disorder is characterized by a persistent pattern of inattention with or without hyperactivity that causes academic and social impairment in children by the age of seven (American Psychiatric Association, 2000). The majority of children with ADHD present with a combination of hyperactive-impulsive and inattentive symptoms (Millstein, Wilens, Biederman, & Spencer, 1997). The hyperactive-impulsive symptoms typically result in fidgeting, getting out of one's seat when expected to remain seated, running around excessively, difficulty awaiting turns, excessive talking, interrupting others, and blurting

out answers before questions are completed (APA, 2002). The inattentive symptoms include difficulty staying on task, not listening when spoken to, trouble following directions, forgetfulness, and losing items needed for everyday activities (APA, 2002). Prevalence rates of ADHD in the United States have been estimated to range from 3% to 7% (APA, 2002). Based on self and parent reports, ADHD has been estimated to persist into adulthood for 46% to 58% of individuals diagnosed in childhood (Barkley, Fischer, Smallish, & Fletcher, 2002). However, a 4.4% prevalence estimate of adult ADHD suggests that the disorder may continue into adulthood for more people (Kessler, et al., 2006) since the estimate is similar to that found in children.

ADHD in adulthood. Despite a 4.4 percent prevalence rate of adult ADHD (Kessler et al., 2006), the diagnosis is controversial (Faraone, Biederman, Feighner, & Monuteaux, 2000; McGough & Barkley, 2004). According to the revised fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR)*, ADHD symptoms must be recognized and cause impairment that is “maladaptive and inconsistent with developmental level” by age seven (APA, 2000). However, other sources suggest that the age cut-off of seven is inappropriate as it precludes many people with ADHD symptoms from being diagnosed if the disorder was not recognized in time (Barkley et al., 2002; Faraone et al., 2006; McGaugh & Barkley, 2004). In addition, longitudinal data have suggested that *DSM-IV-TR* criteria do not account for developmental changes resulting in criteria that do not accurately capture the manifestation of ADHD in people over age seven (Hart, Lahey, Loeber, Applegate, & Freick, 1995). More specifically, as children with ADHD mature into adulthood and acquire coping skills, hyperactivity and impulsivity tend to decrease while inattention and distractibility remain (Adler, 2004; Davidson, 2008; Millstein et al., 1997; Nadeau, 2005). Consequently, adults with ADHD are often challenged by tasks that require executive functioning resulting in poor time

management skills, organizational problems, difficulty with self-regulation, and a need for structure (Nadeau, 2005). In addition to problems associated with inattentive symptoms, life for adults with ADHD is further complicated by a high rate of comorbidity with other psychological conditions including antisocial disorders, depressive disorders, bipolar disorders, anxiety disorders, and substance dependence (Biederman, 2004; Kessler et al., 2006; Millstein et al., 1997). Consequently, adults with ADHD experience multiple challenges with personal adjustment and adaptation to social and occupational roles.

Difficulties of having an attention disorder. The symptoms of ADHD cause problems that reach into many facets of life. Below, research highlighting the overarching impairment that adults with ADHD face will be presented. This will be followed by a discussion of literature about the academic and occupational problems that people with ADHD experience.

Quality of life. Several sources indicate that adults with ADHD experience impairment in addition to ADHD symptoms which significantly impacts their personal and professional lives (Able, Johnston, Adler, & Swindle, 2007; Barkley, 2002; Barkley, Murphy, & Kwasnik, 1996; Biederman et al., 2006). Adults with ADHD commonly experience “the world as more distressing” (Knouse et al., 2008). In regard to intrapersonal functioning, Knouse and colleagues (2008) found a relationship between the inattentive symptoms that typify adult ADHD and general distress defined by decreased positive affect and increased negative affect. Interestingly, the relationship was not moderated by social contact, satisfaction with current activities, concentration, or social context which suggested the general distress was strongly related to inattentive symptoms. In regard to relationships, people of all ages with ADHD experience interpersonal difficulties that are rooted in their inability to cooperate, take turns, and reciprocate (Barkley, 2002). The increased likelihood for adults with ADHD to be separated, divorced, or

remarried compared to adults without ADHD provides some insight into how these interpersonal problems manifest in adult intimate relationships (Able et al., 2007; Biederman et al., 2006).

Other social problems also exist. For example, antisocial behaviors common in ADHD coupled with impulsivity, have been associated with more arrests for adults with ADHD (Barkley et al., 2002; Biederman et al., 2006). Arrests among adults with ADHD are commonly for victimless crimes, such as disorderly conduct and drug possession, or crimes against property, such as stolen property or money; violent crimes are less common (Barkley et al., 2002). Similarly, adults with ADHD are more likely to be at fault for traffic accidents, be involved in driving accidents with injuries, lose their driver's licenses', and fail to appear in court (Barkley, 2002).

What is more, adults with ADHD are frequently involved in accidents at work and in their homes (Barkley, 2002).

Academic and occupational functioning. Poor academic and occupational outcomes are commonly associated with ADHD. Studies have consistently shown that from childhood into adolescence, individuals with ADHD are more likely to be held back, achieve lower grades, and not graduate from high school (Able et al., 2007; Barkley, 2002; Biederman et al., 2006). Likewise, few adults with ADHD enter college and even fewer graduate (Able et al., 2007; Barkley, 2002; Biederman et al., 2006). Naturally, academic impairment leads to occupational dysfunction. Compared to non-ADHD controls, adults with ADHD have reported less employment, less full-time employment, frequent job changes, more difficulty keeping jobs as a result of ADHD symptoms, and less satisfaction with their professional lives (Biederman et al., 2006). These occupational problems have been linked to the aforementioned inattentive symptoms such as poor time management, difficulty with self-regulation, and a need for structure (Nadeau, 2005).

A study conducted by Painter, Prevatt, and Welles (2008) assessed career beliefs and job satisfaction among adults with ADHD symptoms. Results of the study indicated that ADHD symptoms predicted dysfunctional career beliefs, confusion surrounding career decision-making, anxiety to commit to specific career choices, and external conflict resulting from an inability to balance the importance of self-perceptions and input from others. There was also incongruence between the intrinsic job satisfaction, that is the aspects of the job that allow an individual to experience satisfaction because of his or her own abilities or initiative, and extrinsic job satisfaction, that is aspects of a job that allow the individual to experience satisfaction because of the actions of other individuals or policies (Painter et al., 2008; Weiss, Dawis, England, & Lofquist, 1967). The incongruence suggests that the participants with ADHD thought they were good employees despite negative feedback from employers. The discrepancy between self-perceptions and external feedback may reflect a lack of self-awareness and difficulties with perspective taking, as well as an inability to perceive social cues (Painter et al., 2008). In addition, ADHD in adulthood has been linked to impaired work performance and decreased work productivity in a nationally representative sample of workers (Kessler, Adler, Ames et al., 2005). Thus, it appears that adults with ADHD face enormous work-related challenges and there is a need to understand what workplace contexts allow individuals with ADHD to thrive.

Functional environments for individuals with ADHD. The treatment literature for ADHD indicates that the type of environment in which a person with ADHD symptoms exists can influence functional outcomes (Pelham & Fabiano, 2000; Safren, 2006; Young, 1999). Behavior modification interventions have a robust history in ADHD treatment for children because they manipulate the environment through commands, punishments, and rewards to achieve target behaviors (Pelham & Fabiano, 2000). Accordingly, psychosocial treatments for

adults also incorporate environmental factors, usually in the form of structure (Safren, 2006; Young, 1999). Research indicates that medication does not successfully treat all ADHD symptoms and that structured cognitive-behavioral approaches are effective for treating residual symptoms because they allow the client and therapist to follow an agenda specific to the goals of treatment (Safren, 2006). In addition, structured and pragmatic treatment approaches that focus on psychoeducation are most appropriate for adults with ADHD (Young, 1999). As such, it logically follows that structured work environments might foster positive occupational outcomes for adults with ADHD.

A common factor among adults with ADHD and learning disabilities who experience occupational success is a sense of control in their environment (Gerber, Ginsberg, & Reiff, 2001). Structured work environments provide predictability that allows adults with ADHD to experience a sense of mastery and control in their vocations. The career-related literature about adults with ADHD echoes this notion as it points to jobs with duties that are particularly challenging for this population. For example, jobs that involve a lot of paper work are typically problematic (Nadeau, 2005). In addition, jobs that include sedentary positions, are repetitive, and require attention to detail are not as good of a fit for adults with ADHD (Painter et al., 2008). On the other hand, jobs that involve frequent task changes and support staff who take responsibility for organizational and structural components of the work environment are ideal (Painter et al., 2008).

ADHD and the military. Experts have suggested that the military is a functional environment for adolescents with ADHD as they may benefit from the structure provided by the armed forces (Friedman, Blaschke, Klam, & Stein, 2006). Historically the Department of Defense (DOD) banned individuals with ADHD diagnoses from enlisting in the military;

however, in 2004 the DOD changed the acceptance standards and individuals with ADHD backgrounds were allowed to enlist with a waiver if they did not require medication to finish high school or to hold down a job for at least one year (Friedman et al., 2006; Krauss, Yuanzhang, Russel, & Powers, 2006). The DOD decision to change the standard regarding ADHD was based on research conducted by Krauss and colleagues that compared recruits with histories of ADHD to those with no history of ADHD for five years. The results indicated that recruits with histories of ADHD did not differ significantly from those with no history of ADHD in terms of military service retention, promotion rates, and mental health outcomes. This finding suggests that adults with ADHD are able to function as well as their peers without ADHD in a military occupational setting. As such, the military environment may be conducive to adaptive vocational outcomes among people with ADHD.

Since the waiver to allow individuals with ADHD to enlist was implemented, there is a dearth of scholarly literature directly linking ADHD symptoms to functioning in a military environment. However, as discussed above, adults with ADHD are likely to thrive in environments that allow them to be active and have supervision of organizational and structured components (Painter et al., 2008). High school graduates and people with college experience are sought to fill the ranks of enlisted personnel (U.S. Department of Labor, Bureau of Labor Statistics, 2009). Adolescents and adults with ADHD are likely to be included in this group since many do not pursue or finish college (Able et al., 2007; Barkley, 2002; Biederman et al., 2006). The Occupational Outlook Handbook (U.S. Department of Labor, Bureau of Labor Statistics, 2009) describes the nature of military training and work as well as the different types of jobs within the armed forces. The first military training experience, boot camp, is characterized as “carefully structured” and involves “rigorous physical exercise.” After boot

camp, enlisted members receive on-the-job training for a military occupational specialty (MOS), which rarely requires extensive classroom training. On-the-job training is likely to be preferable for adolescents and adults with ADHD who have likely experienced poor outcomes in classroom settings (Able et al., 2007; Barkley, 2002; Biederman et al., 2006). Military occupational specialties include but are not limited to the following occupations: combat specialty; construction; electronic and electronic repair; engineering, science, and technical services; machine operator and precision work; protective services; transportation and material building; and vehicle machinery mechanic (U.S. Department of Labor, Bureau of Labor Statistics, 2009). The military offers a variety of opportunities in the enlisted ranks that may be well suited for adolescents and adults with ADHD as the occupational specialties at this level do not require higher education and are supervised by officers.

The educational characteristics of enlisted military ranks are consistent with the academic outcomes common in adults with ADHD. As such, military training and occupations may be a good fit for adults with ADHD. These two points converge to suggest that the military environment might be attractive to adolescents and adults with ADHD as the armed forces have the potential to contribute to occupational satisfaction within this population.

Career Theory and Research

In order to understand the career concerns of adults with ADHD, it is important to view individuals with ADHD in the context of career theory and career research. Early psychologists, including Erikson (1963), Adler (1956), and Freud (1970); wrote on the human needs of work and love for mental health and fulfillment. Contemporary career development researchers continue to emphasize the importance of integrating work and personal issues when conceptualizing the whole person (Betz & Corning, 1993; Davidson & Gilbert, 1993; Krumboltz,

1993). Work and personal lives are not separate entities, but rather interrelated and intertwined domains having reciprocal effects on each other (Zedeck & Mosier, 1990). For example, if an individual becomes depressed after a job loss, his or her problem can be classified as both a career problem and a personal problem (Oskay, 1997). What is more, an unpleasant work life has unfavorable spillover effects on family relations, whereas a productive, satisfying work life has a positive overflow on the quality of life in a family (Karasek & Theorell, 1990).

Additionally, in conceptualizing the individual, careers are closely tied to personal identity and family life (Davidson & Gilbert, 1993) as men and women tend to base their self-evaluations on both career and family roles (Gilbert, 1992). As such, career would be expected to be an important component in the lives of adults with ADHD because experiences at work and with career may influence the quality of life of the individual with ADHD outside of the work environment.

As a reflection of the bi-directional relationship between work and personal lives, career decision-making is conceptualized beyond that of a cognitive task to choose a career that corresponds with one's interests to also include the influence of emotional, environmental, and cultural factors (Judge & Ilies, 2004; Krumboltz, 1993; Lent, 2004). For example, a woman who has interest and talent in engineering will be more likely to pursue an engineering career if she is able to pursue training programs and positions that welcome women in this male-saturated profession, and if she is able to pursue opportunities and resources to foster success that will make her feel happy. Satisfaction with one's career choice is crucial to human happiness since work affects how one spends most of the day, the kind of people with whom one socializes, marriage partners, recreation plans, and retirement possibilities (Krumboltz, 1993; Bandura, Barbaranelli, Caprara, & Pastorelli, 2001). Moreover, occupational stress is associated with

health problems, such as heart disease (van Dijkhuizen & Reiche, 1980), and psychological problems such as psychosomatic illness and negative affect associated with depression and anxiety (Decker & Borgen, 1993; Kohn & Schooler, 1973; Sharit & Salvendy, 1982). These points converge to highlight how adjustment in the world of work often accounts for adjustment in one's personal life. As such, further understanding of work environments that foster job satisfaction among people with ADHD has the potential to foster ideas to improve their personal adjustment. As previously discussed, the military environment may be a good fit for people with ADHD. However, those who transition out of the military could face a drop in job satisfaction if they switch to a work environment that is less conducive to fostering self-efficacy which is associated with job satisfaction.

Career development theories. There are several career development theories that conceptualize vocational behaviors such as career choice and work adjustment. Because a summary of all career development theories is beyond the scope of this study, social cognitive career theory (SCCT; Lent, Brown, & Hackett, 1994) and the theory of person-environment fit (Holland, 1997) will be discussed and utilized as a framework to understand vocational behaviors and satisfaction among adolescents and adults with ADHD. The theories will also be used to guide the presentation of ideas about work environments that may contribute differently to job satisfaction levels among adults with ADHD, particularly military environments.

Social cognitive theory. Social cognitive career theory (Lent, Brown, & Hackett, 1994) is based in Bandura's (1977) social cognitive theory which is guided by two constructs: self-efficacy and outcome expectancy. Self-efficacy is the belief that one can successfully execute a behavior required to produce an outcome such that the higher the level of self-efficacy, the more an individual believes he or she can execute the behavior necessary to obtain a particular

outcome. Outcome expectancy is one's estimate that a given behavior will lead to a particular outcome. Bandura (1977) postulated that while one may know a particular course of action will likely produce certain outcomes, he or she may be hesitant to engage in the required behavior if he or she has serious doubts about his or her ability to perform the activities necessary to produce the desired outcome. One tends to avoid threatening situations believed to exceed his or her coping skills, whereas one will get involved, without hesitation, in activities for which he or she feels capable (Bandura, 1977). A central idea posed in social cognitive theory is that success experiences raise self-efficacy but repeated failures lower self-efficacy. Moreover, enhanced self-efficacy secondary to repeated successes often generalizes to new situations. For example, if Jane experiences success while playing on her soccer team, her self-efficacy for soccer will increase. Because she has high self-efficacy for soccer, she is likely to join more advanced soccer leagues and may even engage in other team sports without hesitation. However, if Jane experiences difficulty playing soccer, her self-efficacy for soccer will be low and she will be less likely to continue to play soccer and may be hesitant to play other team sports. Bandura's (1977) concepts of self-efficacy and outcome expectancies have been applied to motivation to engage in a variety behaviors, some of which relate to career and work.

Social cognitive career theory. Lent, Brown, and Hackett (1994) developed SCCT by applying Bandura's (1977) social cognitive theory to vocational development to provide a conceptual framework to explain how career and academic interests develop, how career choices are made, and how career-related performances are achieved. The theory utilizes the guiding constructs of Bandura's (1977) social cognitive theory, self-efficacy and outcome expectancy, to explain career behaviors. Self-efficacy was first applied to career behavior among women by Hackett and Betz (1981) who postulated that socialization experiences lead women to lack strong

expectations of self-efficacy for many career-related behaviors which resulted in their underestimate of their capabilities for careers. Lent, Brown, and Hackett (1994) went on to propose that self-efficacy and outcome expectancy are dynamic and context dependent factors that affect how individuals perceive their ability to engage in career-related tasks. For example, Bill's self-efficacy for repairing computers may increase overtime through practice, but then diminish when he joins a cohort of colleagues with more advanced computer skills than his own. Individuals tend to engage in career-related activities for which they believe they will be efficacious and avoid career-related activities for which they do not believe they are capable. According to SCCT, self-efficacy is the cognitive mechanism that mediates what people know about careers and their behavior in relation to those careers, such that their confidence to perform career-related tasks (self-efficacy) predicts their career interests, choices, and performance (Lent, Brown, & Hackett, 1994). In regard to outcome expectancy, individuals are more likely to engage in career-related activities which they believe will lead to desired outcomes.

The three-part model of social cognitive career theory. Social cognitive career theory is a three-part theory. The theory holds that self-efficacy and outcome expectancies combine to influence three parts of career: individuals' career-related interests, choices, and performances. The first part of the model, vocational interest as defined by Hansen (1984), involves patterns of likes, dislikes, and indifferences regarding career-relevant activities and occupations. Hansen (1984) explained that childhood and adolescent vocational interests develop through exposure to a variety of activities that relate to potential occupations through the environment. Knowledge about occupations is also learned vicariously through observing and hearing about others performing vocationally-related tasks (Hansen, 1984). Interests are believed to form through repeated activity engagement, modeling, and feedback from important others that result in skill

refinement, personal performance standards, self-efficacy, and outcome expectations for certain tasks (Hansen, 1984). Enduring career interests are thought to form through participation in activities for which people believe themselves to be efficacious and in which they expect positive outcomes (Hansen, 1984). Holland (1997) supplemented Hansen's (1984) definition of vocational interest development by proposing that while people participate in a variety of activities during childhood and adolescence, they are thought to eventually develop a pattern of career-related interests. Social cognitive career theorists went on to hypothesize that patterns of vocational interest develop out of goals that are formed through experiences that resulted from participation in work-related activities. For example, Jimmy enjoys participating in art classes in school so he makes goals to continue his art-related interests in art classes and art projects in his down time. Involvement in career-related activities then results in success and failure experiences that inform self-efficacy and outcome expectancies for general areas of interest. To continue with the example of Jimmy, if he goes on to experience success in his art classes and projects, his interest in art has the potential to evolve into career interests in the arts, such as graphic design. If Jimmy has failure experiences with his art work, art-related interests are likely to drop from his vocational consideration and he will pursue other domains.

The second part of SCCT, career choice, is divided into two categories: choice goals and choice actions (Lent, Brown, & Hackett, 1994). According to SCCT, choice goals arise from the interplay of self-efficacy, outcome expectancies, and career-related interests to produce cognized intentions to engage in certain actions. Choice goals have the potential to increase the likelihood that an individual will engage in choice actions or entry behaviors (Krumboltz, Mitchell, & Jones, 1976; Lent, Brown, & Hackett, 1994). Once choice actions are implemented, performance feedback is received from the environment which affects self-efficacy and outcome

expectancies for the chosen vocational activity which in turn affects choice persistence (Lent, Brown, & Hackett, 1994). Person inputs (e.g. gender, race, socio-economic status, etc.) and background contextual factors moderate choice goals and choice actions in that people are more likely to have and pursue those choice goals allowed by their environments (Lent, Brown, & Hackett, 1994). For example, Beth is interested in sports, but she does not try-out for football because women are not allowed to play football at her school and she does not join a soccer team because there are no soccer teams where she lives.

The third segment of the SCCT model is performance, which Lent, Brown, and Hackett (1994) defined broadly as level of accomplishments and indices of behavioral persistence relative to goals that are either personally selected or chosen for an individual. Self-efficacy is thought to directly affect performance through its role in assisting people to organize and put their skills into action, as well as to indirectly affect performance through choice goals and choice actions. For example, if John has high self-efficacy for woodworking and wishes to become a carpenter, he will likely make goals and practice woodworking without hesitation because he believes he will be efficacious in his efforts. Outcome expectations are thought to indirectly affect performance through the mediation of choice goals and choice actions. In regard to John and his carpentry interest, since his outcome expectation for engaging in carpentry activities is positive, he is likely to make goals to improve his woodworking projects and practice his skills. The outcomes individuals attain through performance feed back into their perceptions of their abilities for certain tasks. So if John receives positive feedback from his environment for his carpentry projects, his efficacy for carpentry will increase; whereas, if he receives negative feedback, his efficacy for carpentry will likely diminish.

Social cognitive career theory also postulates that people have interests that pertain to certain careers, and their previous experience performing tasks similar to those involved in their careers of interest combine with self-efficacy and outcome expectancy to produce goals (Lent, Brown, & Hackett, 1994). According to SCCT, goals operate through people's capacity to imagine desired outcomes and to organize, guide, and sustain their behavior over long periods of time to increase the likelihood of obtaining the desired outcome. Goals for certain careers result in activity selection and practice which in turn result in good or bad performance attainments which shape self-efficacy and outcome expectancy for certain tasks (Lent, Brown, & Hackett, 1994; Locke & Latham, 1990). Successful performances enhance self-efficacy for the job-related tasks and failure performances diminish self-efficacy for the job-related tasks (Lent, Brown, & Hackett, 1994; Locke & Latham, 1990).

Career decision-making self-efficacy. A well-established construct in career development research is that of career decision-making self-efficacy (CDMSE) which was first used by Betz and Hackett (1981) to better understand women's underrepresentation in male-dominated career fields and underutilization in career pursuits. The construct was based on Bandura's theory of self-efficacy (1977) and Crites's career choice competencies (1961) which included accurate self-appraisal, gathering occupational information, goal selection, making plans for the future, and problem solving. Career decision-making self-efficacy helped explain gender differences in career behaviors as lower levels of CDMSE were associated with career indecision as well as anxiety for and avoidance of career-related behaviors (Betz & Hackett, 1981).

Research further established the relevance of CDMSE as it was repeatedly shown to be positively related to numerous adaptive career-related behaviors including active engagement in

career exploration activities (Blustein, 1989), career decidedness (Taylor & Pompa, 1990), vocational identity (Robins, 1985), and career maturity (Luzzo, 1993). The construct has also helped explain approach and avoidance of career-related behaviors among high school students (Gati & Saka, 2001), college students (Taylor & Betz, 1983), and students with disabilities (Luzzo, Hitchings, Retish, & Shoemaker, 1999). In a study of CDMSE among college students with and without disabilities, those without disabilities reported higher levels of CDMSE than both students with learning and non-learning disabilities (Luzzo, Hitching, Retish, & Shoemaker, 1999). Career decision-making self-efficacy is an important construct to consider when understanding job satisfaction as self-efficacy for specific life domains, such as career, predict satisfaction in that domain as well as general life satisfaction (Lent et al., 2005). As such, CDMSE can facilitate the study of career satisfaction among military veterans with symptoms of ADHD.

Social cognitive career theory and job satisfaction. In 2006, Lent and Brown expanded upon SCCT by focusing on how the constructs of the theory account for work/educational satisfaction. They proposed that affective, personality trait, and situational/job factors combine with social-cognitive elements (self-efficacy and outcome expectancies) and behavioral elements (goals and goal-directed activities) to promote or reduce job satisfaction. Social cognitive career theory (Lent, Brown, & Hackett, 1994) also focuses on career entry, making it useful for understanding how work satisfaction evolves among adolescents and young adults with ADHD. More specifically, SCCT accounts for the connection between academic and career development as interests and self-efficacy for academic pursuits developed in school often transform into career selections if social and economic factors allow (Bandura, Barbaranelli, Vittorio, Pastorelli, 2001). As such, SCCT can foster understanding of how academic experiences affect career entry

of young people with ADHD and the job satisfaction they experience in their chosen vocations. Below, the components of SCCT are expanded upon by Lent and Brown (2006) and used as a framework to understand work satisfaction among individuals with ADHD.

Personality and affective trait variables. Several studies have shown relationships between personality traits, affective traits, and job satisfaction (Barrick & Mount, 1991; Connolly & Viswesvaran, 2000; Judge, Heller, & Mount, 2002; Judge, Higgins, Thoresen, & Barrick, 1999; Judge & Ilies, 2004; Salgado, 1998). The personality traits referred to in Lent and Brown's (2004) expansion of SCCT are the Big Five factors which include openness, conscientiousness, extraversion, agreeableness, and neuroticism (Costa & McCrea, 1992). Openness was defined by traits including being imaginative, cultured, curious, original, intelligent, and artistically sensitive (Costa & McCrea, 1992). Conscientiousness was defined as work and achievement oriented, dependable, and orderly (Organ & Lingl, 1995). Extraversion was defined as a predisposition to experience positive emotions as well as to be sociable, active, impulsive, and less introspective (Costa & McCrea, 1992). Agreeableness was defined by traits including being curious, flexible, trusted, good-natured, cooperative, forgiving, soft-hearted, and tolerant (Costa & McCrea, 1992). Finally, neuroticism was defined as proneness toward negative affect such as anxiety and depression (Magnus, Diener, Fujita, & Pavot, 1993; Emmons, Diener, & Larsen, 1985). Several studies indicate associations among the five-factor personality traits and job satisfaction. A meta-analysis on the relationship of the five-factor model with job satisfaction revealed that extraversion and conscientiousness are positively associated with job satisfaction, but neuroticism is negatively related to job satisfaction (Judge et al., 2002). Similarly, another study found an association between conscientiousness and increased levels of intrinsic and extrinsic career success, but found neuroticism to be associated with decreased

levels extrinsic career success (Judge et al., 1999). Intrinsic career success was defined as an individual's subjective reactions to his or her own career (Gattiker & Larwood, 1988) and extrinsic career success was defined as highly visible outcomes of job performance such as pay and status (Jaskolka, Beyer, & Trice, 1985).

Similar to data suggesting relationships between conscientiousness and job satisfaction, studies also suggest associations between affective states and job satisfaction. Affective events theory (Weiss & Cropanzano, 1996) suggests that work place events contribute to affective reactions which in turn influence behaviors and attitudes. The affective components referred to by Lent and Brown (2004) included positive and negative affect which are linked to the five-factor personality traits. Specifically, positive affect is characterized as dispositional traits similar to extraversion, in which the individual tends to more often experience positive perceptions and feelings, whereas negative affect is characterized as traits consistent with neuroticism such that the individual tends to experience more negative perceptions and feelings (Connolly & Viswesvaran, 2000). In regard to job satisfaction, people who experience greater positive affect seem to have greater job satisfaction compared to those who experience greater negative affect (Connolly & Viswesvaran, 2000).

As such, Lent and Brown (2006) hypothesized that extraversion, conscientiousness, and neuroticism; and their corresponding levels of positive and negative affect, partially contribute to vocational satisfaction. They reasoned that this relationship may be partially explained by self-efficacy and outcome expectations, such that affect associated with personality traits (e.g. extraversion, conscientiousness, and neuroticism) may affect satisfaction indirectly through cognitive appraisal of personal capability to achieve a desired outcome (Lent & Brown, 2006). That is, people who experience higher levels of trait-positive affect likely perceive themselves as

more capable, experience greater self-efficacy, and expect more favorable outcomes than those with higher levels of trait-negative affect. Personality traits may also affect satisfaction indirectly through appraisal of environmental supports, such that people with higher levels of trait-positive affect perceive their environmental supports more favorably than people with higher levels of trait-negative affect (Lent & Brown, 2006).

Goal-directed behavioral variables. Once affected by positive and negative affect, self-efficacy and outcome expectancy are hypothesized to impact motivation for participation in and progress toward goals (Lent & Brown, 2006). Feeling competent and confident with respect to valued goals is associated with satisfaction (Carver & Scheier, 1999; McGregor & Little, 1998). What is more, progress towards personally important goals predicts enhanced well-being (Brunstein, 1993). However, low expectations of success are associated with higher levels of negative affect (Emmons, 1986), which in turn affects approach or avoidance of goal-related activities (Elliot & Sheldon, 1997). Those who tend to avoid goals experience lower levels of positive affect and those who are more apt to approach their goals experience greater levels of positive affect (Elliot, Sheldon, & Church, 1997; Carver & Scheier, 1999). As such, people with higher levels of self-efficacy are more likely to make progress at their educational and career goals and people with reduced self-efficacy are less likely to make vocational goal progress (Lent & Brown, 2006).

Cognitive variables. As previously mentioned, self-efficacy, or the degree to which one believes he or she can successfully execute a behavior to produce an outcome, and outcome expectancy, or one's estimate that a given behavior will lead to a particular outcome, combine to play a large role in whether or not an individual will engage in or avoid behaviors to achieve a desired outcome (Bandura, 1977). Lent and Brown (2006) proposed that self-efficacy and

outcome expectation directly affect vocational satisfaction since feeling efficacious and receiving expected outcomes are inherently satisfying (Lent & Brown, 2006). As such, people with more positive outcome expectancies are more likely to engage in behaviors to make progress at their vocational goals and those with more negative expectations are less likely to make progress towards their goals, impacting their satisfaction respectively.

Environmental variables of SCCT. Social cognitive career theory incorporates the influence of goals and efficacy-relevant environmental supports, resources, and obstacles on work satisfaction (Lent & Brown, 2006). More specifically career conditions and satisfaction are conceptualized in terms of person-environment fit (Dawis & Lofquist, 1984; Kristof-Brown, Zimmerman, & Johnson, 2005) and contextual supports and restraints (Lent & Brown, 2006).

Person-environment fit is a construct that has dominated job satisfaction literature, including the theory of work adjustment (Dawis & Lofquist, 1984) and Holland's (1997) theory of vocational personalities and work environments. The construct has been specified to a greater degree as person-job fit, which is the reciprocal relationship between a person's characteristics and those of the job or tasks that are performed at work (Edwards, 1991). To be even more specific, types of person-job fit include complimentary fit which occurs when individuals' characteristics fill a gap in the current environment, or vice versa; as well as supplementary fit which exists when the individual and the environment are similar (Kristof-Brown, Zimmerman, & Johnson, 2005). Optimal career satisfaction is thought to occur when employees' knowledge, skills, and abilities correspond with what a job requires; as well as when employees' needs, desires, or preferences are met by the jobs that they perform (Edwards, 1991). A meta-analysis of 62 published studies that investigated the relationship between person-job fit with attitudes, performance, withdrawal behaviors, strain, and tenure found that job satisfaction was strongly

associated with person-job fit (Kristof-Brown, Zimmerman, & Johnson, 2005). Brown and Lent (2006) emphasized the importance of work values, or the conditions/rewards that individuals anticipate their work environment to provide and expectancy-value beliefs, or the degree to which individuals perceive work-relevant outcomes and their importance to the individual. For example, a person who values autonomy and creativity is likely to experience greater job satisfaction in a work environment that 1) requires and values utilization of these traits and 2) provides outcomes that validate autonomy and creativity in a way that is meaningful to the employee.

In addition to the degree of fit between an individual and their work environment, social and material contextual supports and restraints impact the degree to which one is able to pursue personal goals and experience self-efficacy (Brown & Lent, 2006). These variables help explain why individuals do not pursue activities that interest them. Access to goal-relevant resources likely promotes vocational satisfaction, whereas obstacles to goal-relevant resources likely hinder vocational satisfaction (Lent & Brown, 2006). As such, if a background or contextual factor is perceived as a barrier, the individual is less likely to believe he or she can enter into the activity and doubt that engagement in the activity will result in a desired outcome. Therefore, goal-relevant environmental resources likely impact goal progress which in turn affects work/school satisfaction (Lent & Brown, 2006).

The availability of emotional and environment support is beneficial in the midst of difficulty in a goal pursuit (Harlow & Cantor, 1995). Individuals who wish to improve their task performance seek informational support from contacts who can serve as models of task success because it increases their perception that they can master the task (Taylor & Lobel, 1989). In addition, support from encouragers and confidants can help alleviate distress associated with

setbacks as encouragement increased the perception that individuals could obtain the desired outcome (Cohen & Wills, 1985). Therefore access to and restriction from supports who can provide information, serve as models, and give encouragement will affect one's self-efficacy and outcome expectancy for their goal pursuits in academic and job settings.

Theory of person-environment fit. Because the theory of person-environment fit is embedded in the environmental section of SCCT and the purpose of this study is to explore work environments conducive to satisfaction among people with ADHD, further explanation of the theory of person-environment fit is necessary. The theory of person-environment fit (Holland, 1997) is grounded in the premise that career choice is an expression of one's personality, and thus, members of similar occupations have similar personalities. The theory also presumes that there is a reciprocal relationship between people and their environments; such that, people influence their environment, and environments influence people (Walsh, Price, & Craik, 1992). Personalities are described according to their resemblance to six personality types and environments are characterized by six ideal environments that correspond to the personality types (Holland, 1997). The personality types and their corresponding ideal environments are labeled realistic, investigative, artistic, social, enterprising, and conventional (Holland, 1997).

Personality and environment types. Discussion of personality and environmental types below are all taken from Holland (1997). Realistic personalities are described as preferring activities that involve the manipulation of machines, tools, and things. They value material rewards for tangible accomplishment and see themselves as practical, conservative, and having manual and mechanical skills, but lacking in social skills. Realistic types are seen by others as normal and frank. They tend to avoid interaction with people. Realistic environments require manual and mechanical competencies, as well as interaction with machines, tools, and objects.

They demand conforming behavior and reward the display of practical accomplishment. For example, going to a construction job on-time each day and finishing road work repair are consistent with realistic personalities. Realistic environments favor practical, productive, and concrete values and allow the expression of robust, risky, and adventurous personal styles. Examples of occupations in realistic environments include carpenters and heavy machinery operators.

Investigative personalities are described as preferring activities that involve exploration, understanding, and prediction or control of natural and social phenomena. They value the development and the acquisition of knowledge and perceive themselves as analytical, intelligent, skeptical, and having academic talent, but lacking interpersonal skills. Investigative types are seen by others as asocial and intellectual. They tend to avoid persuasion or sales activities. Investigative environments require analytical, technical, scientific, and verbal skills and demand skepticism and persistence in problem solving. They reward the documentation of new knowledge, understanding, or solution of problems. Similarly, the acquisition of knowledge through scholarship or investigation is valued. These occupations involve analytical or intellectual activity aimed at problem-solving or creation and use of knowledge. Examples include a psychologist and a microbiologist.

Artistic personalities prefer literary, musical, or artistic activities and they value the creative expression of ideas, emotions, or sentiments. They see themselves as open to experience, innovative, and intellectual; but lacking in clerical or office skills. Others perceive them as unconventional, disorderly, and creative. Artistic types tend to avoid routines and conformity to established rules. Artistic environments require innovation or creative ability, as well as the ability to be emotionally expressive in interaction with others. These environments

demand imagination in literary, artistic, or musical accomplishments. Artistic environments favor aesthetic values and allow for the personal expression of unconventional ideas or manners. Occupations of this nature involve creative work in music, writing, performance, sculpture, or unstructured intellectual endeavors. Examples include musicians and interior designers.

Social personalities are described as preferring activities that involve helping, teaching, treating, counseling, or serving others through personal interaction. They value social service and the welfare of others. Social types see themselves as empathic, patient, and having interpersonal skills; but lacking mechanical ability and thus avoid mechanical and technical activities. They are seen by others as nurturing, agreeable, and extraverted. Social environments require interpersonal competencies and skills in mentoring, treating, healing, and teaching others. Demands of this environment include empathy, humanitarianism, sociability, and friendliness. The expression of concern for the welfare of others is valued. Occupations in this environment involve working with others in a helpful or facilitative way, such as a counselor or clergy member.

Enterprising personalities are described as preferring activities that involve persuading, manipulating, or directing others. They value material accomplishment and social status. They see themselves as having sales and persuasive ability, but lacking scientific ability and thus avoid scientific or intellectual topics. Others see them as energetic and gregarious. Enterprising environments require skills in persuasion and manipulation of others. These environments demand initiative in the pursuit of financial or material accomplishment and reward the display of dominance and self-confidence. Occupations in enterprising environments involve selling, leading, and manipulating others to attain personal or organizational goals, such as lawyers and retail store managers.

Conventional personalities are described as preferring activities that involve establishing or maintaining orderly routines and applications of standards. They value material or financial accomplishment and power in social, business, or political arenas. Conventional types see themselves as having technical skills in business or production, but lacking in artistic skills. They tend to avoid ambiguous or unstructured activities. Conventional environments require clerical competency and skills in meeting precise standards of performance. These environments demand organizational ability and reward conformity and dependability. Conventional outlooks and concern for orderliness and routines are valued and encouraged. Occupations typical of conventional environments involve working with things, numbers, or machines to meet predictable organizational demands or specific standards, such as a production editor or bookkeeper.

The theory of person-environment fit is also based on assumptions about the relationship between personality and environmental types. The theory assumes a calculus, or a specific and predictable way in which the personality/environmental types are interrelated, in the shape of hexagonal structure (Holland, 1997). Each tip of the hexagon represents a personality/environmental type in the order of realistic, investigative, artistic, social, enterprising, and conventional (Holland, 1997). The types are arranged according to their theoretical interrelations such that types adjacent to one another share more in common than types on opposing sides of the hexagon (Holland, 1997). For example, investigative types are most similar to realistic and artistic types and least similar to enterprising types. In addition to theoretically organizing the personality/environmental types, the hexagonal structure sets a stage that facilitates understanding of secondary assumptions of person-environment fit theory.

Predictive constructs of vocational outcomes. Person-environment fit theory includes four working assumptions that describe the interaction between person and environment to facilitate prediction of vocational outcomes such as vocational choice, job tenure, achievement, and satisfaction. The first construct, congruence, refers to the match between a person's personality and his or her environment based on the six personality/environmental types discussed above (Holland, 1997). For example, an artistic individual working in an artistic environment is considered highly congruent, but the same person working in a conventional environment is considered highly incongruent as artistic and conventional types are on opposite sides of the hexagonal structure. The degree of fit, or match, between a person's personality and their work environment is presumed to predict job-related outcomes such that those with greater levels of congruence experience greater satisfaction and longer tenure (Holland, 1997).

A second construct presumed to impact job-related outcomes is differentiation which first refers to the degree of distinction between what a person likes and dislikes (Holland, 1997). For example, a person who knows he or she has a strong preference for competencies associated with realistic occupations is likely to find a job environment that fits his or her personality. On the other hand, an individual who is ambivalent about his or her interest in jobs and work environments will likely be less satisfied than the former person. It follows that individuals whose interests are better defined are in a better position to find work environments that match their personality. Because the theory of person-environment fit places equal emphasis on people and environments, differentiation also characterizes environments. Work environments that offer greater differentiation of competencies according to the types in the hexagonal structure are more likely to suit individuals with corresponding interests. For example, a work place that requires an accountant to balance and budget accounts to meet company goals is more ideal for a

conventional type than a work place that asks an accountant to also engage in promotional activities that are more in line with an enterprising type. It follows that work environments with greater differentiation of job tasks are more likely to attract people who will adequately meet job demands.

The third construct assumed to predict job-related outcomes in person-environment fit theory is consistency. Consistency refers to the “internal coherence” (Spokane, 1996) among a person’s interests in terms of the personality/environmental types in the hexagonal structure (Holland, 1997). Interests consistent with types that are closer in proximity to one another in the hexagonal structure are considered more consistent than interests of types further apart on the structure (Holland, 1997). For example, a person with primarily investigative and artistic interests is considered more consistent than a person with primarily investigative and enterprising interests. The construct applies to environments as well, such that work places that offer more opportunities for competencies from types in closer proximity on the hexagonal structure are predicted to have better outcomes because they will attract people with these strengths (Holland, 1997). For example, an environment that requires investigative and artistic competencies is more likely to attract a person with these interests than an environment that demands investigative and enterprising competencies. In regard to vocational outcomes, people with more consistent interests are more likely to flourish than people with less consistent interests (Holland, 1997). Similarly, environments that offer more consistent types of work are predicted to attract employees who will be productive in these jobs over time (Holland, 1997).

The fourth predictive construct of vocational outcomes is identity. Identity is considered an estimate of the clarity and stability of one’s career-related goals, interests, and talents (Holland, 1997). Those who are high in identity are predicted to enter work environments that

match their goals, interests, and talents; whereas, those low in identity are predicted to have difficulty finding environments that provide a good match. Like other constructs in the theory of person-environment fit, environments can be described to have an identity too (Holland, 1997). A work place with clarity of the competencies needed to accomplish its goals is predicted to easily attract and select people to fulfill its needs; however, a work place with a disorganized sense of the skills and personalities to best meet its needs is less likely to find good matches (Holland, 1997).

In conclusion, congruence, differentiation, consistency, and identity, are constructs within the theory of person-environment fit used to describe the interaction of people and environments to predict vocational outcomes (Holland, 1997). Individuals who are more congruent, differentiated, consistent, and high in identity are predicted to be well-adjusted in terms of career choice, job tenure, achievement, and satisfaction (Holland, 1997). Whereas, those who are less congruent, differentiated, consistent, and low in identity are predicted to experience poor-adjustment in the vocational outcomes previously listed (Holland, 1997). Likewise, in a parallel fashion, environments with higher levels of consistency, differentiation, consistency, and identity are more likely to attract and choose people to meet their needs rather than environments with lower levels of these constructs.

The complimentary relationship of social cognitive career and person-environment fit theories. Career development research indicates a complimentary relationship between SCCT and person-environment fit theory, such that social cognitive constructs have predicted vocational outcomes that map onto Holland's (1997) personality/environmental types (Gore & Leuwerke, 2000; Lent, Brown, & Larkin, 1987; Smith & Fouad, 1999). As such, the personality/environmental types (realistic, investigative, artistic, social, enterprising, and

conventional) of person-environment fit theory appear to be most useful as organizational constructs of occupational interests and environments; whereas, social cognitive constructs are the most robust predictors of vocational outcomes. A confirmatory factor analysis examining the relationship of social cognitive constructs to academic subject matters suggested that self-efficacy, outcome expectations, interests, and goals were specific to distinct subjects (math/science, art, social studies, English) that did not generalize across subject-domains (Smith & Fouad, 1999). For example, self-efficacy for math/science did not generalize to self-efficacy for all subjects. Similarly, self-efficacy for math/science did not generalize to outcome expectations, interests, or goals for math/science domains. Another study of self-efficacy among the Holland themes found that male college students rated their self-efficacy for realistic and investigative interests higher than women college students (Lapan, Boggs, & Morrill, 1989). This body of research suggests that people have different levels of self-efficacy and outcome expectations and different interests and goals within the Holland types. In addition, adaptive cognitions in one domain or type cannot be assumed to generalize to others.

Career development research also provides insight about the strength of the predictive constructs of SCCT and person-environment fit theory. A hierarchical regression analysis revealed that while both social cognitive and person-environment fit constructs predicted college students' consideration of occupation types based on Holland types (realistic, investigative, artistic, social, enterprising, and conventional), outcome expectations and self-efficacy were better predictors than congruence (Gore & Leuwerke, 2000). Outcome expectations proved to be the best predictor of vocational consideration with a standardized beta of .42, followed by self-efficacy with a average standardized beta of .32, and finally congruence was the weakest predictor with a standardized beta of .08 (Gore & Leuwerke, 2000). Similarly, a multiple

regression analysis revealed that self-efficacy was a better predictor of college students' grades, persistence in technical/scientific majors, and awareness of career interest than congruence (Lent, Brown, & Larkin, 1987). However, congruence emerged as a stronger predictor of career decidedness than self-efficacy (Lent, Brown, & Larkin, 1987). Taken together, these results suggest that congruence accentuates the positive vocational outcomes associated with high self-efficacy and positive outcome expectations within an environment consistent with one's personality and interests.

In light of theoretical literature that suggests environments moderate how likely people are to pursue goals and actions (Lent, Brown, & Hackett, 1994), research that highlights the complimentary relationship between SCCT and person-environment fit theory may also point to a relationship in which the degree of one's person-environment congruence may moderate the relationship between social cognitive constructs and vocational outcomes such as satisfaction. As such, those with greater awareness of environments that compliment their personalities may have higher levels of self-efficacy and more positive outcome expectations for work-related tasks that are associated with adaptive vocational outcomes.

Social Cognitive Career and Person-Environment Fit Theories Applied to Career Issues Unique to People with ADHD

Social cognitive career theory's (Lent, Brown, & Hackett, 1994) focus on career entry is appropriate for the conceptualization of career-relevant issues among adolescents and young adults with ADHD because it accounts for how interests and skills developed in school often transform into vocational selections if social and economic factors allow. Below, the components of SCCT, expanded upon by Lent and Brown (2006), are used as a framework to understand vocational issues among individuals with ADHD. In addition to serving as an

organizational framework, SCCT is specifically used to discuss personality traits, affective traits, goal-related behaviors, and cognitions that characterize people with ADHD as they relate to vocational choice and satisfaction. The theory of person-environment fit is specifically used to conceptualize how environmental factors impact the vocational experience of adults with ADHD because it fosters understanding of environments that may be more congruent with the personality traits of adults with ADHD. The military is also discussed as a potentially adaptive occupational environment for which adults with ADHD may self-select.

Personality and affective trait variables among people with ADHD. As previously discussed, a relationship exists between personality and affective traits and job satisfaction (Barrick & Mount, 1991; Connolly & Viswesvaran, 2000; Judge, Heller, & Mount, 2002; Judge et al., 1999; Judge & Ilies, 2004; Salgado, 1998). Higher levels of conscientiousness, extraversion, and positive affect are positively associated with job satisfaction and higher levels of neuroticism and negative affect are negatively associated with job satisfaction (Judge et al., 1999; Judge et al., 2002; Mount & Mount, 1991). Therefore, understanding of these personality and affective traits among adults with ADHD can inform understanding of their vocational satisfaction.

Personality research has shown that adults with ADHD are low in conscientiousness (Nigg et al., 2004). This conclusion is consistent with descriptions of adults with ADHD as having poor time management skills, difficulty with self-regulation, and a need for structure (Nadeau, 2005). As such, adults with ADHD are likely less achievement-oriented and dependable compared to individuals higher in conscientiousness, making them less likely to experience self-efficacy and desired outcomes at work which are associated with job satisfaction.

Personality research has also shown that adults with ADHD are high in neuroticism (Nigg, Goldsmith, & Sachek, 2004). Studies have drawn connections between neurotic traits and self-reported traits of adults with ADHD including mood variability, irritability, impulse control problems, anxiety, low self-esteem, negative affect, difficulty coping with stress, and proneness to anger (Biederman, Faraone, Keenan, & Tsuang, 1991; Biederman et al., 1993; Hechtman, Weiss, & Perlman, 1980; Nigg et al., 2004; Shea & Fisher, 1996). Adults with ADHD symptoms not detected in childhood are at a particular disadvantage because their untreated symptoms contribute to psychosocial problems that result in discouragement, guilt, and negative self-perceptions that are internalized over many years (Heiligenstein & Keeling, 1995). What is more, neurotic traits such as negative emotion, anxiety, and depression were linked to dysfunctional career beliefs, career decision-making confusion, and anxiety to commit to career choices among adults with ADHD (Painter, Prevatt, & Welles, 2008). Taken together, research connecting ADHD to high levels of neuroticism indicates that these traits likely hinder job satisfaction among adults with ADHD.

Studies are mixed in terms of the associations between ADHD and extraversion. Although one study found an association between ADHD symptoms and extraversion among self-reports of college students (Braaton & Rosen, 1997), others studies have failed to link extraversion with the disorder (Ranseen, Campbell, & Baer, 1998). Even though the characteristics of extraversion (positive emotion, sociable, active, impulsive, and less introspective) seem somewhat consistent with the personalities of adults with ADHD on the surface (Costa & McCrea, 1992), the experience of extraverts often contrasts with that of people with ADHD (Nigg et al., 2004). People with ADHD typically have histories of poor social skills, negative reactions, and social ostracism, inconsistent with the experience of extraverts as

children, adolescents, and adults (Hoy, Weiss, Minde, & Cohen, 1978; Weiss & Hetchman, 1993). Despite mixed evidence of an association between extraversion and ADHD, the combination of high extraversion, low conscientiousness, and high neuroticism among people with ADHD (Barkley et al., 1996) suggests poor insight. This combination of personality traits coupled with ADHD symptoms may contribute to poor academic performance, less employment, frequent job changes, and difficulty keeping jobs which are cited in ADHD vocational literature (Able et al., 2007; Barkley, 2002, Biederman et al., 2006). One explanation for these outcomes is incongruence between self-perceptions and the perception of employers whereby people with ADHD perceive themselves as better employees than their bosses do (Painter et al., 2008). As such, adults with ADHD may have little awareness of how their interpersonal style and behavior contributes to disappointing academic and vocational outcomes. Another explanation could be that the combination of high extraversion, low conscientiousness, and high neuroticism may contribute to poor insight about vocational interests and fit, resulting in career indecision. As such, people with ADHD may be guided towards military enlistment by parents, teachers, and/or counselors or they may self-select for the military in light of undeveloped career interests.

Goal-directed behavioral variables among people with ADHD. Individuals with ADHD experience attention deficits which make organizing, guiding, and sustaining behavior over long periods of time difficult (Bierderman, et al., 1993). Research among college students with ADHD indicated that deficits in executive functioning associated with the disorder make it difficult for them to plan their education and career goals (Norvilitis, et al., 2010; Norwalk, et al., 2009). According to SCCT, the ability to set and maintain goals is imperative to the development of CDMSE which is associated with job satisfaction. What is more, poor academic adjustment associated with ADHD may undermine confidence to achieve educational and career

goals (Norvilitis, et al., 2010; Norwalk, et al., 2009). Thus it follows that if adults with ADHD struggle to set and maintain goals, the development of their CDMSE will be thwarted and their job satisfaction diminished. As such, low self-efficacy that diminishes motivation to set goals may also contribute to self-selection for the armed forces among adolescents and young adults with ADHD since the military may be more attractive than joining the work force once they reach a time when they must make a vocational decision.

Levels of vocational “decidedness” also impact the ability to set and maintain goals (Holland & Holland, 1997). High school and college students who identified themselves as either vocationally “decided” or “undecided” were found to differ in their sense of identity and vocational maturity (Holland & Holland, 1997). Undecided students were characterized by interpersonal incompetency, lack of self-confidence, lack of involvement, anxiety, unclear and shifting identity, and poor decision-making skills; traits similar to those used to describe people with ADHD (Barkley et al., 1996). As such, it is not surprising that adults with ADHD were found to be affected by career indecision (Painter et al., 2008). However, researchers have also argued that many undecided students do not make vocational decisions when there is no pressure to do so, which might be adaptive since intelligent individuals do not make decisions until there is good reason to do so (Holland & Holland, 1997). Regardless of the cause of vocational indecision among people with ADHD, they likely have limited knowledge of career options and little interest in career exploration. According to SCCT, those without motivation to engage in career exploration are unlikely to engage in goal-relevant activities and make progress towards their goals; both of which are associated with job satisfaction (Brown & Lent, 2006).

Cognitive variables among people with ADHD. A high sense of self-efficacy for self-regulated learning and academic coursework promotes self-efficacy for academic- and career-

related pursuits (Bandura et al., 2001). Research has shown that children and adolescents with ADHD have diminished self-efficacy for academic-related tasks and peer relations compared with children without learning disabilities (Akerman, Dykman, & Peters, 1977; Tabassam & Grainger, 2002; Weiss, Minde, Werry, Douglas, & Nemeth, 1972). Thus, it is possible that individuals with ADHD have poor self-efficacy for academic tasks that does not generalize to non-academic arenas. Extending this relationship into adulthood may link low self-efficacy with certain types of jobs for individuals adults with ADHD. As a result, the poor self-efficacy that adults experience in certain jobs leads to poor job satisfaction according to SCCT (Lent & Brown, 2006).

As previously discussed, CDMSE is a well-established construct in career development research that predicts approach and avoidance behaviors for career-related tasks. Career decision-making self-efficacy was studied among college students with ADHD by Norwalk, Norvilitis, and MacLean (2009) to better understand the relationship between self-reported ADHD symptoms in college students and factors associated with persistence in college. Results indicated that higher levels of inattention symptoms, but not hyperactive symptoms, predicted lower CDMSE. These results were replicated by Norvilitis, Ling, and Zhang (2010) among college students in the United States and China. Together, these studies also support the notion that people with ADHD are at risk for having poor CDMSE that is associated with low job satisfaction (Betz & Hackett, 1981; Brown & Lent, 2006). That being said, there is a gap in ADHD research about CDMSE levels among people with ADHD who are not in college. As such, research to investigate CDMSE to better understand vocational outcomes among the many people with ADHD who do not pursue college is needed.

Research also indicates that an external locus of control, or the belief one has little control over the events and consequences in life, impedes the development of self-efficacy (Judge & Bono, 2001). A similar relationship exists between locus of control and CDMSE in that people with a more external locus of control have lower CDMSE (Taylor & Pompa, 1990). Children who are hyperactive and underachieving often perceive failures as well as successes through an external locus of control (Linn & Hodge, 1982). Thus, it follows that since adolescents with ADHD tend to attribute the events and consequences in their lives to external sources, they are likely to have poor confidence in their ability to achieve their desired outcomes, including career-related decisions. As such, an external locus on control contributes to low levels of CDMSE that is associated with low job satisfaction in adulthood.

In contrast to the notion that individuals with ADHD have low self-efficacy, one study found that children with ADHD perceived themselves as similar to controls in regard to competence and global self-worth (Hoza, Pelham, Milich, Pillow, & McBride, 1993). However, the children with ADHD tended to deny responsibility for negative social events (i.e. ability, task difficulty, effort, personal qualities, mood, and luck) and assume responsibility for positive social events. What is more, the self-evaluations of the children with ADHD were positive despite their behavioral, social, and academic problems (Hoza et al., 1993). Although these results are counterintuitive, the results are consistent with research suggesting that individuals with ADHD tend to have an external locus of control and do not hold themselves accountable for negative life events (Linn & Hodge, 1982; Painter, Prevatt, & Welles, 2008). In fact, researchers suggested that the inflated self-reports of the children with ADHD could serve an ego-protective function to save face in light of academic and social failures (Hoza et al., 1993). However, this protective function could contribute to a lack of insight that could lead to future problems. Follow-up

studies of adolescents with ADHD into adulthood support Hoza and colleague's prediction. Compared with controls, adults with ADHD completed fewer years of education, failed more grades, and received lower grades (Weiss & Hechtman, 1986). As such, problems associated with hyperactivity and inattention that result in academic and social failures likely contribute to the development of low self-efficacy for job-related behaviors over time. What is more, a lack of self-awareness may contribute to those with ADHD choosing jobs in environments where they are more likely to experience failures than successes, further compounding poor self-efficacy for achieving desired outcomes.

Person-environment fit theory and environmental variables of SCCT among people with ADHD. As previously mentioned, goal-relevant environmental resources and barriers are thought to affect a person's belief about how likely his or her entrance into an activity will result in a desired outcome (Brown & Lent, 2006). Even though ADHD symptoms make entrance into careers difficult for people with the disorder (Able et al., 2007; Barkley, 2002; Biederman et al., 2006), research indicates that many people with ADHD go on to be successful in the world of work as long as their environment is conducive to adaptation of their ADHD symptoms (Weiss, 1999). As such, understanding how job environments affect people with ADHD can foster ideas about the types of environments they may be drawn to. Since discussion of all environmental variables that can affect vocational choice goals and actions among people with ADHD is beyond the scope of this study, the personality/environmental types of the theory of person-environment fit will be used to speculate about work environments that are likely to foster job satisfaction among people with ADHD.

Although there are likely within-group differences among people with in regard to their personality types according to the Holland's hexagonal structure, the environment types may

differ in how conducive they are to job satisfaction among people with ADHD in general. Research indicates that job environments that are similar to academic environments are unlikely to be a good fit for people with ADHD. Multiple sources make clear that children, adolescents, and adults have diminished self-efficacy for academic tasks (Akerman, Dykman, & Peters, 1977; Tabassam & Grainger, 2002; Weiss, Minde, Werry, Douglas, & Nemeth, 1972) which hinders academic aspirations, achievement, and the mastery of occupational competencies (Bandura, 1997; Bandura et al., 2001; Lent et al., 1994). In addition, their problems with inattention (Barkley et al., 2002) are barriers to self-regulated learning that is associated with positive academic and career outcomes (Bandura et al., 2001). As such, investigative environments that value academic talent, acquisition of knowledge, analytical skills, and persistence in solving problems (Holland, 1997) may not be good fit for people with ADHD. In addition, work environments that involve a lot of paperwork, sedentary positions, repetition, and attention to detail are problematic for people with ADHD (Nadeau, 2005) making conventional environments a poor fit because these jobs require self-regulation and organizational ability to meet precise performance standards (Holland, 1997). Artistic work environments pose unique problems for people with ADHD as well since they require unstructured intellectual endeavors (Holland, 1997), which are likely problematic for people with ADHD given the problems they experience with inattention (Barkley et al., 2002). Social work environments require interpersonal competencies (Holland, 1997) and are likely to be a challenge for people with ADHD because of interpersonal difficulties that result in problems cooperating, taking turns, and reciprocating (Barkley, 2002). Enterprising environments require initiative for the pursuit of financial and material goals (Holland, 1997) which can be difficult for people with ADHD because of poor organizational skills (Barkley, 2002). Realistic work environments; however,

may be a good fit for people with ADHD because they involve practical, physical, hands-on, and tool-oriented tasks (Holland, 1997) that may be more conducive to job satisfaction among this population. What is more, these jobs have the potential to involve physical activity, predictability, and structure which have been cited as characteristics that are conducive to positive vocational outcomes among people with ADHD (Painter et al., 2008). What is more, the poor self-efficacy that people with ADHD have for academic tasks may not generalize to non-academic areas, thus they may have more confidence for the job competencies of realistic environments. In fact, experts have suggested that the military is a functional environment for adolescents with ADHD as they may benefit from the structure provided by the armed forces (Friedman, Blaschke, Klam, & Stein, 2006).

As previously mentioned, high school graduates and people with college experience are sought to fill the ranks of enlisted personnel (U.S. Department of Labor, Bureau of Labor Statistics, 2009) and adolescents and adults with ADHD are likely to be included in this group since many do not pursue or finish college (Able et al., 2007; Barkley, 2002; Biederman et al., 2006). Because of the potential fit of realistic environments for people with ADHD, some may self-select for realistic domains such as the military because they have poor self-efficacy for career decision-making and may foreclose on other occupational areas. Those without support from parents, teachers, and school counselors to assist them in investigating career paths that align with their interests may view the military as one of the more lucrative ways to enter the work force after high school. As such, the military may be an attractive occupational avenue for people with ADHD.

Summary

People with ADHD are at a particular risk for low levels of job satisfaction (Painter et al., 2008) due to symptoms that inhibit their ability to experience academic and vocational self-efficacy (Akerman et al, 1977; Biederman et al., 2006; Tabassam & Grainger, 2002; Weiss et al., 1972). According to SCCT, self-efficacy for one's work is positively associated with job satisfaction (Lent & Brown, 2006). The theory of person-environment fit indicates that the degree of fit between one's personality and the environment in which he or she works is also associated with job satisfaction (Holland, 1997). Based upon these theoretical underpinnings, those with better awareness of environments that are congruent with their personalities likely have greater confidence in their ability to choose jobs that are satisfying. Career decision-making self efficacy is a construct strongly associated with adaptive vocational outcomes. Research has shown that people with ADHD often have poor CDMSE. As such, they are at risk of not knowing what types of work environments are conducive to their success. To date, research of the CDMSE of people with ADHD has been conducted with college students. While this research has shed light onto the low levels of CDMSE that are associated with poor persistence in college (Norwalk, et al, 2009; Norwalk, et al., 2010), it does not capture the experience of people with ADHD who do not pursue college due to academic difficulties and enter the world of work instead (Able et al., 2007; Barkley, 2002; Biederman et al., 2006). Adjustment in academic settings can provide insight into vocational adjustment as a major purpose of academic arenas is to prepare people for vocations (United States Department of Education Office of Educational Research and Improvement, 1999). However, academic and vocational arenas differ in that academic settings demand students to master general skills, such as mathematics and language, and theoretical knowledge in an analytic and deliberative approach, while vocational settings require explicit knowledge of a specific job as well as

practical skills and techniques (Eraut, 2004). As such, adjustment to academic settings among college students with ADHD cannot be assumed to generalize to vocational adjustment of adults with ADHD in the work force. One way to study vocational constructs associated with job satisfaction among people with ADHD is to study those who pursued the military instead of college. Sources converge to suggest that the military may be attractive to those with ADHD because it is conducive to adaptive outcomes in light of ADHD symptoms (Friedman et al, 2006; Krauss, et al., 2006). What is more, the military work environment is consistent with realistic environments that provide practical, physical, hands-on, and tool-oriented tasks (Holland, 1997) that are likely to be a good fit for people with ADHD. The armed forces also provide structure and predictability that are associated with job satisfaction among people with ADHD (Painter et al., 2008). While people with ADHD who join the military may develop self-efficacy for their work that results in job satisfaction, those without insight about the types of environments that are adaptive to the problems they experience with ADHD may transition into problematic work environments upon discharge. As such, study of factors that contribute to poor career decision-making self-efficacy and low job satisfaction among military veterans may allow for a better understanding of how realistic work environments impact vocational outcomes among people with ADHD who do not pursue college. Vocational data from this population will provide investigators with information that may generalize to more people with ADHD as many do not pursue post-secondary education.

III. Methods

Design

The present study used a descriptive field design to examine the relationship between ADHD symptoms and job satisfaction among United States military veterans. The study examined the potential moderating effects of confidence to make career decisions and job environment on the relationship between ADHD symptoms, as measured by the *Adult ADHD Self-Report Scale* (ASRS; Adler, Kessler, & Spender, 2003) and job satisfaction, as measured by the *Minnesota Satisfaction Questionnaire-Short Form* (MSQ-SF; Weiss, Dawis, England, & Lofquist, 1967). Lastly, this study examined differences in job satisfaction, as measured by the MSQ-SF, between veterans with and without ADHD for realistic versus other work environments. Work environment was determined by participants' responses to a demographic question about their current occupation which was coded either realistic or other by the author according to the theory of person-environment fit.

Participants

Based on a power analysis with an alpha level of .05 and a minimal effect size of interest of .05, 262 participants were needed to have power of at least .80. A minimum of 262 military veterans who were discharged from the armed services for no more than five years, were currently employed, and were the age majority in their state were needed to participate. The cut-off of five or less years since discharge was indicated so the results of the study would generalize to veterans who are transitioning from military to civilian work environments. The participants were non-randomly recruited from Iraq and Afghanistan Veterans of America (IAVA), Facebook

social networking site, and the American Psychological Association Division 19 Military Psychology list serve. Participants were recruited to participate in the study, which involved data collection via a web-based survey program Qualtrics, through ads posted on the IAVA Community of Veterans social forum and on Facebook. In addition, an announcement describing the study was distributed on the APA Division 19 list serve. See appendices I, J, and K for complete descriptions of the announcements used to recruit participants through IAVA, Facebook, and the APA Division 19 list serve.

Veterans who endorsed a history of head injury that resulted in unconsciousness were taken to the end of the survey and excluded from the study as this condition often results in attention problems not associated with ADHD. Veterans who endorsed service connection for posttraumatic stress disorder (PTSD) completed the survey to ensure a high number of participants were not excluded because of a condition that is common among veterans (Hoge et al., 2006). However, once participants were recruited, those who endorsed service connection for PTSD were excluded from the study because PTSD also results in attention problems that are not associated with ADHD. Because there is a high rate of comorbidity between depression and ADHD (Murphy & Barkley, 1996; Torgersen, Gjervan, & Rasmussen, 2006), veterans who endorsed symptoms that indicated depression were included in the study. Those who indicated that they were currently taking medication to treat ADHD did not complete the survey and were excluded from the study since the medication will likely decrease the extent to which they experience ADHD symptoms. Veterans who indicated current alcohol and/or drug abuse completed the survey, but were excluded from the analyses because substance abuse can also result in attention problems not associated with ADHD. These individuals completed the survey

because there was no way to score the substance abuse screening measures without their completion of the survey.

Measures

Demographic Questionnaire. Participants were asked to complete a demographic questionnaire (Appendix A) to provide personal information including age, gender, ethnicity, and education level. Participants also reported their branch of military enlistment, military pay grade, years enlisted in the military, years since discharge from the military, type of post-military civilian job held, current employment status, combat experience during military enlistment, history of head injury, and presence of service connection for posttraumatic stress disorder. The participants also indicated if they currently take medication to treat ADHD and if not currently taking medication to treat ADHD, if they had ever taken it in the past.

Adult ADHD Self-Report Scale. Symptoms of ADHD were measured by the *Adult ADHD Self-Report Scale* (ASRS; Appendix B; Adler, Kessler, & Spender, 2003). This scale consists of 18 items that are represented on a 5-point Likert-type continuum (0 = never, 4 = very often) with higher scores indicating greater impairment associated with ADHD symptoms. The ASRS includes two subscales: (a) Inattentive, which assesses how often inattentive ADHD symptoms occur and (b) Hyperactive/Impulsive, which assesses how often hyperactive/impulsive ADHD symptoms occur. Each of these subscales contains nine items. A sum score of 16 or less indicates an individual is unlikely to have ADHD. A sum score between 17 and 23 indicates a person is likely to have ADHD. A sum score greater or equal to 24 indicates that a person is highly likely to have ADHD. For the present study, participants were grouped into those with and without ADHD. A score of 16 or less was used to categorize participants as not having ADHD and a score 17 or higher was used to categorize participants as having ADHD. The

coefficient alpha for the full scale of the ASRS among adults who rated themselves was 0.88 (Adler et al., 2006). In regard to construct validity, the ASRS has a high positive correlation (0.84) with the ADHD Rating Scale (ADHD RS), a measure of ADHD symptoms with strong validity and reliability (Dupaul, Power, Anastopoulos, & Reid, 1998).

Career Decision Self-Efficacy Scale-Short Form. The *Career Decision Self-Efficacy Scale-Short Form* (CDSE-SF; Appendix C; Betz, Hammond, & Multon, 2005) was developed from the original 50-item *Career Decision Self-Efficacy Scale* (CDSES; Taylor & Betz, 1983). The CDSE-SF is a 25-item self-report measure of self-efficacy in the domain of career decision-making. It consists of five subscales: 1) accurate self-appraisal, 2) gathering occupational information, 3) goal selection, 4) making plans for the future, and 5) problem solving. Participants rate their confidence to complete various tasks related to the career decision making domains using a five-point scale, ranging from 1 (no confidence at all) to 5 (complete confidence). Higher scores reflect higher self-efficacy for career decision making. Sample items include “select one occupation from a list of potential occupations you are considering” and “figure out what you are and are not ready to sacrifice to achieve your career goals.” Because one item on the CDSE-SF uses language directed towards people considering or enrolled in college, the investigator replaced the word “major” with “job.” Alpha coefficients for the CDSE-SF ranged from .73 to .83 for the subscales and .94 for the total score (Betz, Klein, & Taylor, 1996). The CDSE-SF correlated strongly with well-established measures of career indecision including the *Career Decision Scale* (CDS; Osipow, 1987) and the *My Vocational Situation* (MVS; Holland, Daiger, & Power, 1980; Betz et al., 1996).

Minnesota Satisfaction Questionnaire-Short-Form. The *Minnesota Satisfaction Questionnaire-Short Form* (MSQ-SF; Appendix D; Weiss, Dawis, England, & Lofquist, 1967) is

a 20-item self-report measure designed to assess job satisfaction across a variety of domains. This measure is constructed along a 5-point, Likert-type scale ranging from 1 (very dissatisfied) to 5 (very satisfied) with higher scores indicating greater job satisfaction. The MSQ-SF includes three subscales: (a) intrinsic satisfaction, which consists of 12 items that assess aspects of work and the work environment that allow an individual to experience satisfaction because of his or her own abilities or initiative, such as achievement and ability utilization, (b) extrinsic satisfaction, which consists of 6 items that assess aspects of work and the work environment that allow one to experience satisfaction because of the actions of other individuals and policies, such as the way company policies are administered, and (c) general satisfaction, which consists of the 20 items and provides a composite of all the facets of job satisfaction. Median reliability coefficients for the MSQ-SF subscales were reported to be 0.86 for the Intrinsic Satisfaction scale, 0.80 for the Extrinsic Satisfaction scale, and 0.90 for the General Satisfaction scale (Weiss et al., 1967). Since the MSQ-SF was developed from the Minnesota Satisfaction Questionnaire Long Form (MSQ-LF), which has previously established construct validity for the ability utilization, advancement, and variety scales, the short form is also deemed to have adequate construct validity (Weiss et al., 1967).

Short Michigan Alcohol Screening Test. The *Short Michigan Alcohol Screening Test* (SMAST; Appendix E; Selzer, Vinokur, & van Rooijen, 1975) is a shortened version of the 25-item *Michigan Alcohol Screening Test* (MAST; Selzer, 1971) developed for the purpose of screening for alcoholism in treatment and research programs (Selzer et al., 1975). The SMAST is a self-administered measure that consists of 13 “yes” or “no” items such as “Do you ever feel guilty about your drinking?” Each “yes” answer equals one point and a higher score indicates greater problems associated with alcohol. A score of one or two indicates that there is no alcohol

problem. A score of three indicates a borderline alcohol problem. A score of four or more indicates that there may be an alcohol problem. As such, participants with scores four or higher were excluded from the study. The coefficient alpha for the SMAST is .93 (Selzer et al., 1975). The correlation between the SMAST and the MAST, which has strong reliability and validity, is .97 (Selzer et al., 1975).

Drug Abuse Screening Test – 10. The *Drug Abuse Screening Test - 10* (DAST-10; Appendix F; Skinner, 1982) is a shortened version of the 28-item Drug Abuse Screening Test (DAST; Skinner, 1982) developed for the purpose of assessing drug use over the past twelve months. The DAST-10 pertains to the abuse of various classes of drugs that may include cannabis, solvents, tranquilizers, barbiturates, cocaine, stimulants, hallucinogens, or narcotics; but does not assess alcohol or tobacco use. The DAST-10 is a self-administered measure that consists of 10 “yes” or “no” items such as “Have you neglected your family because of your use of drugs?” Each “yes” answer equals one point and a higher score indicates greater problems associated with substance abuse. A score of three or more on indicates the likelihood of substance abuse or dependence. As such, participants with scores of three or higher were excluded from the study. Factor analysis of the DAST-10 indicated that either a one- or three-factor solution. The first and largest factor was external consequences of using drugs such as getting in arguments and missing appointments. The subsequent factors assessed aspects of addiction. The coefficient alpha for the DAST-10 is .86 (Cocco & Carey, 1998). Research provides support for strong convergent validity (.97) of the DAST-10 with the DAST (Cocco & Carey, 1998), which has detected current and past drug abuse among adults with ADHD (McCann, Simpson, Ries, & Roy-Byrne, 2000). The DAST-10 has significantly discriminated people with lifetime and current substance-abuse disorders from people who had never abused

drugs (Bohn, Babor, & Kranzler, 1991). Scores on the DAST-10 do not correlate with measures of alcohol use, recent consumption, abuse, or problems associated with alcohol use (Mayfield, McLeod, & Hall, 1974).

Center for Epidemiologic Studies Depression Scale. The *Center for Epidemiologic Studies Depression Scale* (CES-D; Appendix G; Randolff, 1997) is a 20-item self-report scale. Each item consists of a symptom of depression. Participants are asked to rate each item on a 4-point Likert-type scale ranging from 0 (rarely, or none of the time) to 3 (all of the time) to indicate the frequency with which that symptom is experienced within the past week. A higher score on the CES-D indicates more severe depression symptoms. The CES-D includes four factors: 1) positive affect, 2) negative affect, 3) somatic, and 4) interpersonal. The scores for the positive affect factor are included for response bias and are reverse scored. Sample items include “I was bothered by things that usually don’t bother me” and “my sleep was restless.” The coefficient alpha for the CES-D is .87 (Cole, Rabin, & Smith, 2004). The correlation coefficient of the CES-D and the *Beck Depression Inventory* (BDI; Beck et al., 1961), a well established depression measure is .73 (Cole et al., 2004).

Procedures

After obtaining approval from the Auburn University Internal Review Board (IRB), United States military veterans were recruited through ads placed on the IAVA website and Facebook social networking site, as well as an email distributed on the APA Division 19 list serve requesting recipients to forward the email to veterans. An electronic survey was created using Qualtrics and a link and invitation to participate was disseminated through IAVA, circulated via Facebook, and distributed on the APA Division 19 list serve. Participants consented to participate by opening the link to the study. The demographic questionnaire

appeared first. The following measures were counterbalanced and appeared next: ASRS, CDSE-SF, MSQ-SF, MAST, DAST-10, and CES-D. All responses were anonymous. Participants received debriefing information after they completed the survey including the researcher's e-mail address and academic department address so participants could contact the researcher with any questions about the study. Once the investigator received participants' survey responses, the jobs they indicated on the demographic questionnaire were categorized into Holland types based on the Dictionary of Holland Occupational Codes (Gottfredson, 1996).

Statistical Analyses

Descriptive statistics were calculated for all measures. Basic correlations for all variables were computed. Two hierarchical regression analyses and a 2x2 between subjects ANOVA were conducted to evaluate the hypotheses.

IV. Results

Overview

This chapter describes and summarizes the statistical analyses and procedures used to evaluate the hypotheses of the present study. Results for study hypotheses are described following a summary of data screening and descriptive statistics for the sample.

Testing Statistical Assumptions. Assumptions of multilinear regression were tested. Responses to all measures in the study were within ranges that were possible for each measure. Assumptions of linearity and homoscedasticity were tested. A plot of the standardized residuals against the standardized predicted values did not result in a curve-shaped pattern that would suggest problems with linearity. In addition, the data points were evenly distributed above and below zero. These findings indicate that the assumption of linearity was not violated. The plot also indicated the assumption of homoscedasticity was not violated. The data set was normally distributed. There were no influential data points. Cook's distance and Mahalanobis distance were used to identify outliers in the data set. Five outliers were identified. These participants' responses indicated high levels of ADHD symptoms, high levels of depression symptoms, and/or low levels of job satisfaction. The impact of the outliers on the analyses performed in this study is discussed below.

Participants. A total of 351 people participated in this study. Of those 351, the responses of 263 participants were utilized for the analyses of this study. Eighty-eight participants were excluded from this study. Participants were excluded because they endorsed a history of head injury that resulted in loss of consciousness ($n = 20$), indicated past or current

service connection for PTSD ($n = 29$), were currently take medication to treat ADHD ($n = 1$), obtained a raw score of three or higher on the MAST ($n = 2$), obtained a raw score of four or higher on the DAST-10 ($n = 3$), did not provide information for their current occupation ($n = 10$), identified their occupation as a student ($n = 8$), or did not complete the survey ($n = 29$). The total number of participants excluded because of the reasons listed above exceeds the 88 participants excluded from the study because some participants were excluded for multiple reasons. Of the 263 participants whose responses were used for the analyses of this study, the majority of the participants were between the ages of 21 and 30. The majority of participants indicated their military pay grade as enlisted ($n = 241$) with the remaining participants indicating their military pay grade was officer ($n = 22$).

Descriptive statistics and simple correlations between variables. Means and standard deviations were calculated for job satisfaction, ADHD symptom level, and CDMSE. Correlations were computed between career decision-making self-efficacy, job satisfaction, and ADHD symptom level (see Table 1). A positive correlation was found between career decision-making self-efficacy and job satisfaction ($r = .660, p < .001$), such that higher levels of career decision-making self-efficacy were associated with higher levels of job satisfaction. A negative correlation was found between ADHD symptom level and career decision-making self-efficacy ($r = -.592, p < .001$), such that higher levels of ADHD symptoms were associated with lower levels of career decision-making self-efficacy. A negative correlation was found between ADHD symptom level and job satisfaction ($r = -.446, p < .001$), such that higher levels of ADHD symptoms were associated with lower levels of job satisfaction.

Attention-deficit hyperactivity disorder predicting job satisfaction after controlling for depression. While controlling for depression, ADHD was hypothesized to significantly

predict job satisfaction such that higher levels of ADHD would relate to lower levels of job satisfaction. ADHD scores were mean-centered to reduce multicollinearity in the hierarchical regression model. Table 2 displays the standardized regression coefficients (β) and R square changes ($R^2\Delta$), the latter indicating the amount of variance in the criterion variable explained by the predictor variable, for the prediction model. Hypothesis 1 was supported in that ADHD symptoms significantly predicted job satisfaction after controlling for depression. Depression accounted for 35.4% of the variance ($\beta = -.595, p < .001$) in job satisfaction. After controlling for depression, adding ADHD symptom level to the regression model accounted for an additional 1.5% of the variance ($\beta = -.152, p = .012$) in job satisfaction. This result indicates that higher levels of ADHD symptoms predicted lower levels of job satisfaction after controlling for depression. Because of the presence of five outliers mentioned earlier, this analysis was rerun after the outliers were removed (see Table 3). After removing the outliers, depression accounted for 33.5% of the variance ($\beta = -.579, p < .001$) in job satisfaction. When ADHD symptomology was added to the model that did not contain outliers, ADHD symptoms accounted for an additional 1.3% of the variance ($\beta = -.137, p = .027$). As such, the significant increase in variance accounted for in job satisfaction when ADHD symptoms were added to a model with depression predicting job satisfaction was not an artifact of outliers present in the data set. Higher levels of ADHD symptoms were associated with lower levels of job satisfaction.

Career decision-making self-efficacy predicting job satisfaction above and beyond ADHD symptoms after controlling for depression. Hypothesis 2a was supported in that, while controlling for depression, CDMSE predicted job satisfaction above and beyond that which was be predicted by ADHD symptoms. After controlling for depression, CDMSE scores were mean-centered and added to the model predicting job satisfaction with ADHD symptoms.

Career decision-making self-efficacy scores were mean-centered to reduce multicollinearity among the predictor variables in the regression model. After adding CDMSE to the model predicting job satisfaction with ADHD symptoms, CDMSE accounted for an additional 17.4% of the variance ($\beta = .528, p < .001$) in job satisfaction. In other words, the relationship between CDMSE and job satisfaction was positive in that job satisfaction levels increased as CDMSE levels increased. This statistically significant increase in variance in job satisfaction predicted by CDMSE held even when removing outliers from the data set, with CDMSE accounting for an additional 18.3% of the variance ($\beta = .539, p < .001$) in job satisfaction when outliers were removed from the model. Increased CDMSE was related to greater job satisfaction even when controlling for ADHD symptoms and depression.

Hypothesis 2b was not supported in that, after controlling for depression, the relationship between ADHD symptom level and job satisfaction was not more negative at a statistically significant level for participants with lower levels of CDMSE compared to those with higher levels of CDMSE. After controlling for depression, the interaction term for CDMSE and ADHD was computed by mean-centering scores on each variable and multiplying the centered scores. The scores for CDMSE and ADHD were mean-centered to reduce multicollinearity among the predictor variables in the hierarchical regression model. When this interaction term was added to the model predicting job satisfaction, the interaction between CDMSE and ADHD accounted for an additional 0% of the variance ($\beta = -.004, p = .939$). This result indicates that the interaction of CDMSE and ADHD symptom level did not predict job satisfaction at a statistically significant level. The removal of outliers from the data set did not change the statistical significance of this result; $R^2\Delta = .000$; $\beta = .017, p = .732$.

Differences in job satisfaction based on work environment and ADHD. A 2 (job environment) x 2 (ADHD status) between subjects ANOVA was conducted to investigate differences in job satisfaction between veterans with and without ADHD for realistic job environments versus other work environments. Participants' status with regard to symptoms of ADHD was designated using the cut-off score of 17 on the ASRS. Sixty-four participants were categorized as having ADHD and 199 were categorized as not having ADHD. Participants' job environments were categorized as realistic or other depending on categories obtained for the current reported job using the Dictionary of Holland Occupational Codes (Gottfredson, 1996). Job environment was determined by the first letter in the three-letter code for each job according to the Dictionary of Occupational Codes. Jobs with three-letter codes starting with "R" were coded as realistic. Jobs with three-letter codes starting with "I," "A," "S," "E," or "C" were coded as other. Some jobs indicated by participants did not correspond to jobs listed in the Dictionary of Occupational Codes. These jobs were coded according to jobs that this author thought best corresponded in the Dictionary of Occupational Codes. See Table 4 for a complete list of these jobs and how they were categorized. There was a statistically significant effect for ADHD, $F(1, 263) = 29.385, p < .001$. In other words, participants without ADHD were more satisfied in their jobs than those with ADHD. There was no statistically significant effect for work environment, $F(1, 263) = 1.047, p = .307$. This result indicates that there was no statistically significant difference in job satisfaction among participants based on working in a realistic versus another environment. Hypothesis 3 was not supported in that there was no statistically significant effect for the interaction between ADHD and work environment, $F(1, 263) = .214, p = .644$. In other words, there was no difference in job satisfaction for realistic versus other work environments based ADHD status.

Career decision-making self-efficacy and realistic work environment predicting job satisfaction among participants with ADHD. While controlling for depression, the interaction between CDMSE and realistic work environment were hypothesized to significantly predict job satisfaction among participants with ADHD. Again, ADHD status was determined by a cut-off score of 17 on the ASRS and job environments were categorized as realistic or other depending on categories obtained for the current reported job using the Dictionary of Holland Occupational Codes. A hierarchical regression was conducted to test the hypothesis that after controlling for depression, CDMSE and realistic work environment would interact to predict job satisfaction among participants with ADHD. Scores for CDMSE among those classified as having ADHD were mean-centered to reduce multicollinearity in the hierarchical regression model. Table 5 displays the standardized regression coefficients and the R square changes for each predictor variable in the hierarchical regression model. Among participants classified as having ADHD, the interaction between CDMSE and realistic job environment among people with ADHD accounted for an increase of 3.1% of the variance ($\beta = .227, p = .037$) in job satisfaction after controlling for depression and taking into account the variance accounted for by CDMSE. This result indicates that after controlling for depression, higher levels of CDMSE combined with working in a realistic job type predicted higher levels of job satisfaction among participants with ADHD (See Figure 1). When the regression analysis was rerun with the aforementioned outliers removed, the interaction between CDMSE and work environment no longer significantly increased the variance in job satisfaction accounted for by the model; $R^2\Delta = .020, \beta = .188, p = .105$. In other words, when outliers were not included in the analysis, the interaction between CDMSE and job type did not improve the explanatory power of the model regressing job satisfaction among individuals with ADHD on depression, CDMSE, and job environment at a

statistically significant level. Because the statistical significance of the interaction before the outliers were removed was small and the interaction was no longer present once the outliers were removed, it was felt that a post hoc analysis was not indicated as these results do not indicate a strong case for the presence of an interaction.

Tables

Table 1

Correlation Matrix for the Means, Standard Deviations, and Intercorrelations between Career Decision-Making Self-Efficacy, ADHD Symptom Level, and Job Satisfaction

Predictor	M	SD	CDSE-SF	ASRS
CDSE-SF	100.77	13.97	-	
ASRS	30.85	9.08	-.592**	-
MSQ-SF	79.99	9.96	.660**	-.446**

Note. CDSE-SF = Career Decision-Making Self-Efficacy, ASRS = ADHD Symptom Level, MSQ-SF = Job Satisfaction.

** $p < .01$

Table 2

Hierarchical Regression Analysis for ADHD Symptoms and Career Decision-Making Self-Efficacy in Predicting Job Satisfaction After Controlling for Depression

Predictor	R Square Change	β
Step 1		
CES-D	.354	-.595**
Step 2		
ASRS	.015	-.152*
Step 3		
CDSE-SF	.174	.528**
Step 4		
CDSE-SF X ASRS	.000	-.004

Note: CES-D = Center for Epidemiologic Studies Depression Scale, ASRS = ADHD Symptom Level, and CDSE-SF = Career Decision-Making Self-Efficacy. ASRS and CDSE-SF were mean-centered.

** $p < .001$

* $p < .05$

Table 3

Hierarchical Regression Analysis with Outliers Removed for ADHD Symptoms and Career Decision-Making Self-Efficacy in Predicting Job Satisfaction after Controlling for Depression

Predictor	R Square Change	β
Step 1		
CES-D	.335	-.579**
Step 2		
ASRS	.013	-.137*
Step 3		
CDSE-SF	.183	.539**
Step 4		
CDSE-SF X ASRS	.000	.017

Note: CES-D = Center for Epidemiologic Studies Depression Scale, ASRS = ADHD Symptom Level, and CDSE-SF = Career Decision-Making Self-Efficacy. ASRS and CDSE-SF were mean-centered.

** $p < .001$

* $p < .05$

Table 4

Jobs not Listed in the Dictionary of Occupational Codes

Job Indicated	Closest Match in DOC (Three-Letter Code)
Pilot	Airplane Pilot, Commercial (RIE)
Ammunitions Logistics Specialist	Logistics Engineer (ESC)
Emergency Helicopter Ground Instructor	Instructor, Pilot (Air Transportation) (SRE)
Personal Trainer	Instructor, Physical (SEC)
Carpet Cleaning Tech	Carpet Cutter (RIE)
Medical Services Officer	Medical Service Technician (CSR)
Route Coordinator	Route Supervisor (SER)
Environmental Specialist	Environmental Analyst (ESR/IRE)
Insurance Inspector	Insurance Checker (CSE)
Plant Quality Manager	Quality Assurance Supervisor (SER)
Field Service Tech	Field Service Technician (Machinery Manufacturing) (IRS)
Factory Worker	Laborer (Various R combinations)
Resource Forester	Forester (RIS)
Seasonal Warehouse Coordinator	Warehouse Supervisor (ESR)
Emergency Service Technician	Emergency Medical Technician (RSI)
Industrial Security Specialist	Security Consultant (ESC)
Auto Center Manager	Manger, Automobile Services (ESR)

(continued)

Job Indicated	Closest Match in DOC (Three-Letter Code)
Facilities and Safety Specialist	Safety Manager (IES)
Highway Patrolman	Police Officer (SER)
Lab Assistant	(Coded as “other” since type of lab assistant was not indicated)
Distribution Coordinator	Distribution Supervisor (ECS)
Landscaper	Landscape Gardener (RIS)
Field Survey Tech	Survey Helper (RCS)

Table 5

Hierarchical Regression Analysis for Career Decision-Making Self-Efficacy and Work Environment among Veterans with ADHD in Predicting Job Satisfaction after Controlling for Depression

Predictor	R Square Change	β
Step 1		
CES-D	.323	-.568**
Step 2		
CDSE-SF ADHD	.231	.496**
Step 3		
Realistic Environment ADHD	.007	.094
Step 4		
CDSE-SF ADHD X Realistic Environment ADHD	.031	.227 *

Note: CES-D = Center for Epidemiologic Studies Depression Scale, CDSE-SF ADHD = Career Decision-Making Self-Efficacy among participants with ADHD, and Realistic Environment ADHD = Realistic job environment among participants with ADHD. CDSE-SF ADHD was mean-centered.

** $p < .001$

* $p < .05$

Figure

Figure 1. Interaction Between Career Decision-Making Self-Efficacy and Work Environment Among Veterans with ADHD

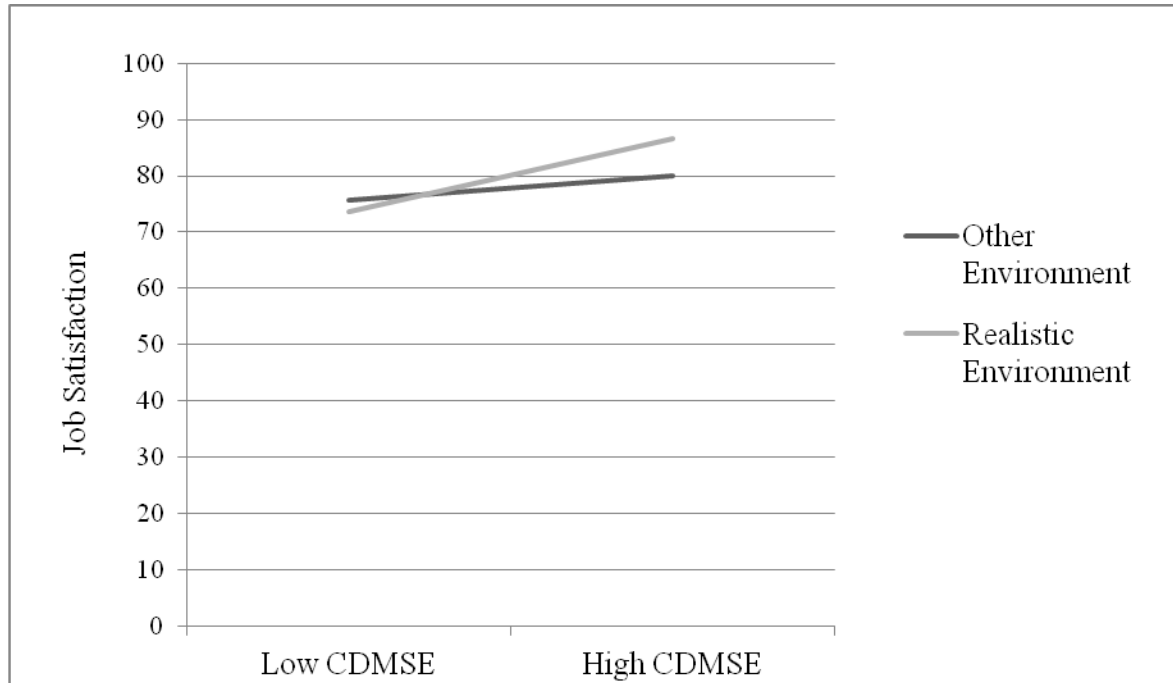


Figure 1. Interaction between CDMSE and work environment for participants with ADHD after controlling for depression and before the removal of five outliers. After controlling for depression, higher levels of CDMSE combined with realistic work environment to marginally predict higher levels of job satisfaction among participants with ADHD. This interaction was no longer present after outliers were removed.

V. Discussion

Overview

The present study was designed to explore the relationship between ADHD symptom level and job satisfaction among military veterans, as well as how the variables of career decision-making self-efficacy and work environment affect that relationship. This chapter will discuss the implications of the results presented in Chapter 4. To begin, the findings of the analyses conducted in this study will be discussed along with possible explanations for their convergence with or divergence from previous literature. Next, implications of this research for practice and future research will be discussed. Next, the limitations of the study will be presented. Lastly, conclusions of this study will be summarized.

Discussion of the results. As was expected, higher levels of ADHD symptoms were associated with lower levels of job satisfaction after controlling for depression. Consistent with previous literature that indicates adults with ADHD report occupational difficulties that include low levels of job satisfaction (Biederman et al., 2006; Painter et al., 2008), veterans who participated in this study experienced lower levels of job satisfaction as the level of their ADHD symptoms increased.

In addition, higher levels of CDMSE were associated with higher levels of job satisfaction among this veteran sample, regardless of the level of ADHD symptoms. This result is consistent with well established career development research which indicates that CDMSE predicts vocational outcomes, including job satisfaction (Lent et al., 2005).

While it was expected that the relationship between ADHD symptom level and job satisfaction would be more negative for veterans with lower CDMSE, the results did not support this hypothesis. For this sample of veterans; higher levels of ADHD symptoms were associated with lower levels of job satisfaction, higher levels of CDMSE were associated with higher levels of job satisfaction, but the relationship between ADHD symptom level and job satisfaction did not differ across levels of CDMSE. As such, CDMSE levels did not affect the relationship between ADHD symptom level and job satisfaction. This result diverges from previous research among college students with ADHD in which higher levels of inattentive ADHD symptoms were associated with lower CDMSE, (Norwalk et al., 2009; Norvilitis et al., 2010). The results of the present study indicate that this finding may not generalize to the occupational functioning of adults with ADHD who may or may not have pursued college. In contrast to the studies conducted by Norwalk and colleagues (2009) and Norvilitis and colleagues (2010), the present study examined inattentive and hyperactive ADHD symptoms together rather than separately and job satisfaction instead of academic outcomes. That being said, the results of the present study do not suggest that the level of CDMSE affected the relationship between ADHD symptom level and job satisfaction in this veteran sample.

Although it was expected that greater job satisfaction would be reported by veterans with ADHD in realistic work environments than those veterans with ADHD working in other environments, the present study did not support this hypothesis. The level of job satisfaction did not differ across realistic and other work environments among the veterans categorized as having ADHD. As such, working in a realistic environment did not appear to facilitate higher job satisfaction among the veterans categorized as having ADHD in this study. Based on this result, there is no conclusive evidence that realistic work environments significantly contribute to job

satisfaction among veterans with ADHD. While realistic environments potentially involve physical activity, predictability, and structure (Holland, 1997) that are associated with positive vocational outcomes among people with ADHD (Painter et al., 2008), this result does not indicate that working in a realistic environment is associated with job satisfaction in this sample. This finding, taken with the previously discussed result that higher levels of CDMSE were associated with higher job satisfaction, is somewhat consistent with career development literature that indicated CDMSE was a better predictor of academic adjustment and career interest among college students than congruence (Lent et al., 1987).

While it was expected that the relationship between CDMSE and job satisfaction would be more positive for veterans with ADHD working in realistic environments versus other types of environments, the present study only marginally supported this hypothesis before the removal of outliers. After the outliers were removed, the results no longer supported this hypothesis. The marginally significant effect could have occurred because of chance. The size of the sample of individuals classified as having ADHD was relatively small such that in a larger sample this result may have met the cut off for statistical significance. Despite well established literature that CDMSE predicts job satisfaction (Lent & Brown, 2006) and the degree of fit between one's personality and the environment in which he or she works is associated with job satisfaction (Holland, 1997); the results of this study did not support the notion that working in a realistic environment interacted with CDMSE in a way that increased job satisfaction among this sample of military veterans with ADHD. Because realistic job type was compared to the other five Holland job types (investigative, artistic, social, enterprising, and conventional) collapsed, instead of separately, it is possible that an examination these six job types separately could reveal

more information about how job type according to Holland's (1997) theory of person-environment fit affects job satisfaction levels among veterans with ADHD.

The effect of depression levels on job satisfaction among this veteran sample is notable in that higher levels of depression were associated with lower levels of job satisfaction. Depression explained 32 to 35 percent of the variance in the hierarchical regression models predicting job satisfaction, which was higher than that of ADHD symptom level, CDMSE, or job environment. This result suggests a stronger relationship between depression levels and job satisfaction compared to the other predictor variables in the study. This result aligns with existing research indicating that higher levels of depression are associated with low levels of job satisfaction in the general population (Faragher, Cass, & Cooper, 2012; Norwalk et al., 2009) and low levels of academic adjustment among college students (Norwalk et al., 2009).

Implications for practice or future research. Since the present study utilized a military veteran sample, the implications of this research will be directed towards veterans; however, these implications likely generalize to all adults with ADHD. Because research suggests that symptoms of ADHD persist into adulthood (Adler, 2004; Davidson, 2008; Millstein et al., 1997; Nadeau, 2005), it is particularly important to realize the negative impact of these symptoms on vocational adjustment and how career counselors and other helping professionals can provide assistance. As previously mentioned, the present study found that higher levels of ADHD symptoms were associated with lower levels of job satisfaction. As such, it is recommended that helping professionals who encounter military veterans with problems associated attention and their work properly assess these individuals for ADHD and other conditions that impact attention; such as depression, anxiety disorders, and head injuries. Proper assessment of attention-related problems can better inform conceptualization of the impact of attention deficits

on career-related problems. While the present study did not examine inattentive and hyperactive ADHD symptoms separately, professionals should be mindful of previous research indicating that inattentive ADHD symptoms were more predictive of poor academic adjustment among college students (Norwalk, et al., 2009). It is possible that this finding may apply to career-related variables as adults with higher levels of inattentive ADHD symptoms may experience lower CDMSE and job satisfaction. An avenue for future research is to examine inattentive and hyperactive ADHD symptoms separately in relation to career-related outcomes among veterans and other adults with ADHD.

Another important conclusion of the present study was that higher levels of CDMSE were associated with higher levels of career satisfaction, regardless of the level of ADHD symptoms. Because many studies of CDMSE are among college students (Lapan et al., 1989; Lent et al., 1997; Luzzo et al., 1999; Norvilitis & MacLean, 2009; Norvilitis et al., 2010; Taylor & Pompa, 1990), this conclusion adds to the literature by extending the predictive ability of CDMSE to a veteran population. An implication of this finding is that efforts to increase CDMSE among veterans with ADHD have the potential to increase their job satisfaction, despite problems they may have with attention. As such, helping professionals who encounter veterans with career-related problems should consider assessing the veteran's CDMSE and consider how it may be affecting their vocational concerns. This assessment can begin with discussions about the veteran's confidence for career decisions, performance, and advancement to gain an understanding of realistic and self-imposed limits (Betz, 2004). Helping professionals may also wish to utilize more formal assessments of CDMSE such as the Career Decision Self-Efficacy Scale (Betz & Klein, 1996) which is designed to assess a person's beliefs about his or her capability to make decisions around career-related behaviors. Another assessment is the Skills

Confidence Inventory (Betz, Borgen, & Harmon, 1996) which measures confidence with respect to the six Holland (1997) occupational themes. These measures can shed light onto particular aspects of CDMSE that may be problematic for the veteran.

In addition to assessment, interventions to increase CDMSE among veterans and other adults who present with vocational problems are recommended. To begin, an exploration of work-related experiences in which the individual has felt efficacious may help guide him or her towards domains where he or she is likely to experience greater satisfaction (Betz, 1992).

Counselors can also facilitate discussions with veterans about vocational areas where their confidence is higher versus lower, what they believe has hindered their confidence for certain areas, and what they can do to increase their confidence for these domains. For example, is the low confidence due to lack of experience, lack of a skill, or an environmental factor? Another recommendation is to have the veteran share his or her ideal job and what he or she believes may be hindering entrance into this domain. Career development research provides guidance for interventions to increase CDMSE that go beyond exploration of beliefs and confidence for vocational tasks and domains. Betz (2004) recommends counseling interventions to enhance CDMSE based in self-efficacy theory. These recommendations involve increasing performance accomplishments, modeling, managing anxiety, and providing support and encouragement. Performance accomplishments may be enhanced by encouraging the veteran to engage in learning opportunities where he or she is likely to have success experiences that will increase self-efficacy (Betz, 2004). Confidence can also be boosted by helping to expose the veteran to models who are similar to themselves and model success in areas where the veteran is lacking self-efficacy (Betz, 2004). Interventions that target management of anxiety for tasks in which the veteran has low self-efficacy include relaxation training as well as self-talk on the task rather

than the self (Betz, 2004). Finally, counselors can provide support and encouragement that the veteran can master vocational tasks as well as reinforcement when he or she tries new things. In addition, helping professionals can help the veteran to set specific vocational goals and provide reinforcement for achieving these goals and help them try again when the veteran falters or experiences setbacks (Betz, 2004).

The present study did not find that a realistic work environment was associated with job satisfaction among veterans with ADHD or that CDMSE and realistic work environment interacted in a way that resulted in higher versus lower levels of job satisfaction; however, these findings point to directions for future research. One consideration is that information about the effect of work environment according to Holland's (1997) occupational types was lost due to collapsing five of the work environments and comparing them to the realistic environment. Future studies can provide a better understanding of how the six environmental domains impact vocational outcomes by examining them separately. Another consideration is that it is not work environment according to Holland's theory of person-environment fit that affects job satisfaction among veterans and other adults with ADHD, but rather the amount of structure present in any type of work environment that predicts job satisfaction. Behavioral treatment literature for ADHD indicates that environments with structure are conducive to positive outcomes among people with ADHD because they provide a sense of predictability and control (Gerber et al., 2001; Pelham & Fabiano, 2000; Safren, 2006; Young, 1999). Future research examining how the degree of structure across work environments influences vocational adjustment among adults with ADHD could elucidate understanding of how environmental characteristics affect vocational adjustment for this population.

Researchers have suggested that the structure associated with jobs in the military could enhance vocational outcomes among this population (Friedman et al., 2006); however, it is plausible to hypothesize that working in a highly structured environment in which many career-related decisions are predetermined could thwart the development of CDMSE. Predetermined placement into jobs within the military could deprive individuals from making career-related decisions that inform their awareness of the type of jobs which are more or less satisfying. Consequently, little awareness of jobs that fit one's personality after leaving a structured work environment, such as the military, could make the transition into civilian jobs more difficult. Longitudinal studies examining CDMSE among individuals while they are enlisted in the military and after they discharge from the armed services could provide more information about the development of CDMSE within environments with differing levels of structure.

Limitations. A number of methodological, instrumental, sampling, and procedural limitations were present in this study. A methodological limitation was the correlational design used to test the hypotheses of the present study which means no causality can be inferred between the relationships between any of the variables. As such, higher ADHD symptoms cannot be said to cause lower job satisfaction and higher CDMSE cannot be said to cause higher job satisfaction. These variables are simply associated with one another and it is possible that another variable, not examined in this study, causes higher versus lower levels of job satisfaction. In addition, it is plausible that being unsatisfied with one's job or career leads one to conclude that one does not have the ability to make good career decisions that will lead to desired outcomes, or to be lacking in CDMSE. An instrumentation limitation was the use of self-report data which is subject to biased responding. What is more, the measures of ADHD, depression, alcohol abuse, and drug abuse; as well as questions about head injury and service

connection for PTSD are screening tools, rather than diagnostic instruments. As a result, there is no way to know if the participants in this study did or did not meet the diagnostic criteria for any of these conditions based on their responses to these screening tools.

The first sampling limitation was that the sample was non-randomly gathered with an online survey. As such, veterans without computer-access were less likely to participate than those readily able to access computers. What is more, the sample was gathered from Facebook, the IAVA website social forum, and the APA Division 19 list serve; as such, veterans who do not use Facebook, are not a part of IAVA, or had no association with anyone who may have distributed the survey via the APA Division 19 list serve were unlikely to participate. A second sampling limitation was the high number of participants that did not complete the survey or were excluded from the analyses because they met one or more of the exclusionary criteria (e.g. history of head injury that resulted in unconsciousness, service connection for PTSD, current medication regimen to treat ADHD, alcohol abuse, and drug abuse). While excluding participants who endorsed these conditions allowed for a more clear examination of attention problems, these problems are common among veteran populations as well as adults with ADHD (Biederman, 2004; Hoge, Auchterlonie, & Milliken, 2006; Hoge et al., 2008; Kessler et al., 2006; Millstein et al., 1997). As such, the exclusion of participants who endorsed these problems limited the external validity of the study. A third sampling limitation was the use of a military veteran sample to study job satisfaction levels as they relate to jobs in a military environment. Based on the results of this study, it is unknown if jobs in a military environment are conducive to job satisfaction among adults with ADHD. What is more, adults with ADHD who are enlisted in the military and experience high levels of job satisfaction may be likely to reenlist in the armed forces to remain in those jobs. As such the sample in the present study does

not capture the experience of adults who may have ADHD and are working in jobs within the military. Research among an enlisted military sample would provide better information about how a military work environment affects vocational adjustment outcomes among adults with ADHD, as well as the extent to which people with ADHD are drawn to the military due to the work environment.

The study contained a number of procedural limitations. To begin, the present study did not assess or control for the presence of learning disabilities, which are commonly comorbid with ADHD (Adler, Barkley, Wilens, & Ginsberg, 2006). As such, the result may not generalize to adults with ADHD who have comorbid learning disabilities. Another procedural limitation was that ADHD was treated as a dichotomous variable in hypotheses 3 and 4. The present study considered participants with ASRS scores of 17 or greater to have ADHD while those with scores of 16 or lower were not considered to have ADHD. The ASRS considers a score of 16 or less to mean a person is “unlikely to have ADHD,” a score of 17 to 23 to mean a person is “likely to have ADHD,” and a score of 24 or greater to mean a person is “highly likely to have ADHD.” While treating ADHD as a dichotomous variable simplified the design of the study, it may have skewed the results such that a greater number of participants were considered to have ADHD than actually had the disorder. An additional procedural limitation is that work environment was also treated as a dichotomous variable. Work environment was categorized as “realistic” or “other,” which collapsed the remaining five work environments (investigative, artistic, social, enterprising, and conventional) in Holland’s (1997) theory of person-environment into one category. Because the remaining five work environments were collapsed into one category, there is no way to know if job satisfaction levels varied among these environments. As such, this study cannot facilitate understanding of how job satisfaction of military veterans is

affected by working in investigative, artistic, social, enterprising, and conventional environments. Additionally, by focusing on the first letter in the Holland three-letter code types when assigning a job to the realistic or other category, jobs that had some realistic components and those that had no realistic component were grouped together. For example, a code type with R (realistic) as the second or third letter was grouped with a code type with no R. As a result, jobs with realistic components were not categorized as realistic which could have impacted the results of the study. More specifically, if all jobs with a realistic component of their job type had been coded as realistic, the results may have indicated a stronger relationship between realistic work environment and CDMSE among veterans with ADHD that would have led to higher versus lower levels of job satisfaction. Finally, the present study did not assess factors within work environment that can affect job satisfaction levels. There are dynamic factors within job environments; such as responsibility level, autonomy, and relationships with co-workers; that were not examined, but have potential effects on job satisfaction levels. For example, the level of satisfaction a person experiences within a job could change as their level of autonomy within that job changes. Depending on the person's values and preferences, increased or decreased levels of autonomy could change the degree of satisfaction he or she experiences in that job. Another consideration not accounted for in the present study is that individuals may willingly endure unsatisfying jobs in order to reach their career goals. So while an individual may have low satisfaction for a current job, he or she may wish to remain in that job as long as it will move him or her towards a job he or she desires and believes will provide higher levels of satisfaction down the road.

Summary and Conclusions

The results of the present study provide empirical support indicating that higher levels of ADHD symptoms corresponded with lower levels of job satisfaction among a military veteran sample. The study also extends well established research that indicates CDMSE relates to vocational outcomes to a veteran population as higher levels of CDMSE were associated with higher levels of job satisfaction. The results of this study did not, however, suggest a unique relationship between ADHD symptom level and CDMSE that predicted job satisfaction. In addition, the present study did not indicate differences in levels of job satisfaction based on working in a realistic versus another type of environment for veterans with and without ADHD. Nor did it indicate that a realistic work environment predicted higher levels of CDMSE among veterans with ADHD. While the present study had several limitations, it represents a unique contribution to the literature on career development of adults with ADHD, as ADHD symptoms and work-related variables were examined in a veteran population. Future research of how ADHD affects vocational outcomes among military personnel, military veterans, and adults in other work atmospheres has the potential to extend understanding of how the disorder affects vocational outcomes beyond a college setting.

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Appendix A
Demographic Questionnaire

1. What is your age?

20 years or younger

21-30 years

31-40 years

41-50 years

51-60 years

61 years or older

2. What is your gender?

Male

Female

3. What is your race/ethnicity?

African American

Asian American

Caucasian

Hispanic American

Native American

Biracial/Multiracial

Other

4. What is the highest level of education you have completed?

High school or less

Some college

College degree

Advanced degree

5. In which military branch were you enlisted?

Air Force

Army

Marine Corps

National Guard

Navy

6. What was your military pay grade?

Enlisted

Officer

7. How many years were you enlisted in the United States armed services?

1-5 years

6-10 years

11-15 years

16-20 years

21-25 years

26-30 years

31+ years

8. How many years have passed since you were discharged from the military?

1-5 years

More than five years

9. What is your current employment status?

Employed full-time

Employed part-time

Self-employed

Disabled and working full-time

Disabled and working part-time

Disabled and self-employed

Fully disabled

Retired

10. If you are currently employed, briefly describe your occupation (e.g. construction worker, nurse, musician, teacher, business owner, or accountant).

11. Have you ever had a head injury that resulted in unconsciousness?

Yes

No

12. Are you service connected for Posttraumatic Stress Disorder (PTSD)?

Yes

No

13. Do you currently take medication to treat attention-deficit hyperactivity disorder?

Yes

No

14. If you are not currently taking medication to treat ADHD, have you taken this type of medication in the past?

Yes

No

Appendix B

Consent Information

Introduction

The purpose of this study is to improve the understanding of unique military-civilian work transition among veterans who have symptoms of attention-deficit/hyperactivity disorder (ADHD).

Individuals who meet the following criteria are encouraged to participate:

Military veterans, discharged from the armed services within the past five years, who are currently employed.

Individuals who meet the following criteria are discouraged from participation:

- Have a history of head injury that resulted in unconsciousness
- Are currently taking medication to treat ADHD

Participation

Participation in this research study is completely voluntary. You have the right to withdraw at anytime or refuse to participate. If you desire to withdraw, please close your internet browser.

Procedures

You will be asked to complete a questionnaire that consists of 125 questions that will take approximately 20 minutes to complete. This questionnaire will be conducted with an online Qualtrics-created survey.

Risks/Discomforts

Risks are minimal for involvement for this study; however, you may feel emotionally uneasy when asked to answer questions about careers, experience with alcohol and/or drugs, and psychological disorders.

Benefits

There are no direct benefits for participation in this study; however, it is hoped that through your participation, researchers will learn more about how problems associated with ADHD can affect the vocational development of military veterans.

Confidentiality

All data obtained from participants will be kept confidential and will only be reported in aggregate format (by reporting only combined results and never reporting individual ones). All questionnaire responses will be concealed, and no one other than the primary investigator and her graduate advisor will have access to them. The data collected will be stored in the HIPPA-compliant, Qualtrics-secure database until it has been deleted by the primary investigator.

Compensation

There is no direct compensation associated with participation in this study.

Questions about the Research

If you have questions regarding the study, you may contact Amy Simpson Owen, B.A. at simpsam@auburn.edu

Questions about your Rights as a Research Participant

If you have questions you do feel comfortable asking the researcher, you contact her advisor, Annette S. Kluck, Ph.D., at ask0002@auburn.edu or the Office of Research Compliance at Auburn University at hsubjec@auburn.edu

The Auburn University Institutional Review Board has approved this document for use from February 22, 2012 to February 21, 2013. Protocol #12-058 EP 1202

Appendix C

Advertisement for Iraq and Afghanistan Veterans of America

If you are a United States military veteran, have been discharged from the armed services for no more than **five** years, are currently employed, and are the age majority in your state; you are invited to participate in a study to improve the understanding of the unique military-civilian work transition among veterans who have different experiences with attention and concentration.

Veterans who meet the following criteria are discouraged from participation:

- Have a personal history of head injury that resulted in unconsciousness
- Are currently taking medication to treat ADHD

This study is being conducted by Amy Simpson Owen, B.A; a doctoral candidate under the supervision of Annette Kluck, Ph.D. at Auburn University. Your participation in this study will help provide more information about how problems with attention and concentration can affect career functioning.

The survey is confidential and will not ask for personally identifiable information. The survey will take approximately 40 minutes to complete. You may withdraw participation at any time by closing your browser. The current study has been approved by the Auburn University Institutional Review Board (IRB). For more information regarding IRB approval and contact information, please click on the survey link below.

HAVING READ THE INFORMATION ABOVE, YOU MUST DECIDE IF YOU WANT TO PARTICIPATE IN THIS RESEARCH PROJECT. IF YOU DECIDE TO PARTICIPATE, PLEASE CLICK ON THE LINK BELOW.

YOU MAY PRINT A COPY OF THIS LETTER TO KEEP.

https://auburn.qualtrics.com/SE/?SID=SV_cGxzDjSHC20j2Is

This link will take you to a consent form and questionnaire.

Please forward this announcement to others who may be interested in participating. Thank you in advance for your help with this research project!

Sincerely,

Amy M. Simpson Owen, B.A.
Doctoral Candidate

Counseling Psychology

2084 Haley Center
Auburn University, 36849
simpsam@auburn.edu

The Auburn University Institutional Review Board has approved this document for use from February 22, 2012 to February 21, 2013. Protocol #12-058 EP 1202

Appendix D

Advertisement to Facebook

Title: Veteran Career Research

Text: You are invited to participate in a study to improve the understanding of the unique military-civilian work transition among veterans.

Image:



Appendix E

Email to the American Psychological Association Division of Military Psychology Listserv

Hello,

I am trying to distribute a survey for my dissertation to military veterans who have separated from active duty within the past five years and are currently employed. Can anyone direct me to sources that might allow me to reach this population? If you know of anyone who may be interested in participation, please forward this announcement to them. Below is a description of my research.

Sincerely,

Amy M. Simpson Owen, B.A.
Doctoral Candidate
Counseling Psychology
2084 Haley Center
Auburn University, 36849
simsam@auburn.edu

If you are a United States military veteran, have been discharged from the armed services for no more than five years, are currently employed, and are the age majority in your state; you are invited to participate in a study to improve the understanding of the unique military-civilian work transition among veterans who have different experiences with attention and concentration.

Veterans who meet the following criteria are discouraged from participation:

- . Have a personal history of head injury that resulted in unconsciousness
- . Are currently taking medication to treat ADHD

This study is being conducted by Amy Simpson Owen, B.A; a doctoral candidate under the supervision of Annette Kluck, Ph.D. at Auburn University. Your participation in this study will help provide more information about how problems with attention and concentration can affect career functioning.

The survey is confidential and will not ask for personally identifiable information. The survey will take approximately 40 minutes to complete. You may withdraw participation at any time by closing your browser. The current study has been approved by the Auburn University Institutional Review Board (IRB).

HAVING READ THE INFORMATION ABOVE, YOU MUST DECIDE IF YOU WANT TO

PARTICIPATE IN THIS RESEARCH PROJECT. IF YOU DECIDE TO PARTICIPATE,
PLEASE CLICK ON THE LINK BELOW.
YOU MAY PRINT A COPY OF THIS LETTER TO KEEP.

This link will take you to a consent form and questionnaire.
https://auburn.qualtrics.com/SE/?SID=SV_cGxzDjSHC20j2Is

Please forward this announcement to others who may be interested in participating. Thank you
in advance for your help with this research project!

The Auburn University Institutional Review Board has approved this document for use from
March 27, 2012 to February 21, 2013. Protocol # 12-058 EP1202.