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The Dissertation Committee for Ashley Beth Hampton certifies that this is the final approved version of the following electronic dissertation: “Examining the Moderating Effects of Race and Gender on the Relationship Between Aggressive Personality Traits and Substance Use in Federal Offenders.”

Suzanne H. Lease, Ph.D. Major Professor

We have read this dissertation and recommend its acceptance:

Stephen J. Leierer, Ph.D.

Alix M. McLearn, Ph.D.

Douglas C. Strohmer, Ph.D.

Accepted for the Graduate Council:

Karen D. Weddle-West, Ph.D.
Vice Provost for Graduate Programs

EXAMINING THE MODERATING EFFECTS OF RACE AND GENDER ON THE
RELATIONSHIP BETWEEN AGGRESSIVE PERSONALITY TRAITS AND
SUBSTANCE USE IN FEDERAL OFFENDERS

by

Ashley Beth Hampton

A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

Major: Counseling Psychology

The University of Memphis

August 2011

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Dedication

This project and my doctoral degree have been an extremely long work in progress. I took a long, windy road, but the end result is the same. I owe my return to school to my Dad, who called me his hero when I left Birmingham to move to Memphis. To my parents, Wayne and Janet, my brother, Allen, and my grandmother, Phobie: you have all been instrumental in my success throughout the years – personally and professionally. You have been loving, generous, and supportive. Thank you all from the bottom of my heart. I love each of you very much.

I would also like to thank Chad, although a simple “Thank You” will never be enough. Chad, you have been the source of my motivation and encouragement through the last few months of this agonizing process. I am grateful for your optimism and unwavering support. Your smile and kind words brighten my days. I am a better person for knowing you. Thank you.

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I want to extend a big Thank You to my cohort and the faculty at the University of Memphis and to my fellow interns, supervisors, and colleagues at FCC Butner. I am grateful to have shared my journey with each of you.

To my Dissertation Committee, I greatly appreciate all of the hard work and valuable time that you have put into my project, my education, and my growth as an individual and a professional. Specifically, I would like to thank my advisor, Dr. Lease, for the amount of time, hard work, and support she put into my education and this project. Also, I would like to thank Dr. Alix McLearn, Dr. Desiree Rozier, and Dr. Phil Magaletta. I am grateful to have worked with each of you on this project and in the BOP system. I consider each of you mentors and friends.

There are many other people that I have encountered that have made a lasting impression on my life. I wish I could name each of you individually. Know that you are in my heart, and I am grateful to have known you.

Abstract

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Examining the Moderating Effects of Race and Gender on the Relationship Between Aggressive Personality Traits and Substance Use in Federal Offenders. Major Professor: Dr. Suzanne H. Lease.

Over 209,000 individuals are incarcerated in the Federal Bureau of Prisons, with the majority of offenders incarcerated for drug-related offenses. Research demonstrates an increased level of aggressive behaviors and substance use for offenders when compared to community samples. However, the impact of aggressive personality traits on substance use in offenders has not previously been examined. The study used archival data gathered from 356 male and female offenders housed in institutions throughout the Federal Bureau of Prisons system. The Buss-Perry Aggression Questionnaire-Short Form and the Alcohol and Drug Problems scales of the Personality Assessment Inventory were used to assess the relationship between aggressive personality traits and alcohol and drug problems. Moderating effects of race and gender on these relationships were also examined. While relationships were found between aggressive personality traits and substance use, gender was not found to be a moderator. As hypothesized, race moderated the relationship between aggressive personality traits and substance use such that aggressive personality traits were predictive of substance use, but only for White offenders. Clinical implications and future research directions were discussed.

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Chapter I: Introduction

Over 209,000 individuals are currently incarcerated in federal prisons in the United States (Federal Bureau of Prisons, 2011). While the vast majority (93.5%) of federal offenders are male, 6.5% are female (Federal Bureau of Prisons, 2011). Approximately 38.7% are African American, 57.8% are White, and 32.9% identify as Hispanic (Federal Bureau of Prisons, 2011). According to the Federal Bureau of Prison statistics (2011), the largest number of convictions stems from drug-related offenses (51.3%); followed by weapons, explosives, or arson charges (15.3%); and immigration offenses (11.0%). The remainder of offenses encompass less than 5% each, with robbery at 4.3% and homicide, aggressive assault, and kidnapping combining for 2.8%. Because of the prevalence of alcohol and drug use in offenders and the link between aggressive personality traits and substance use, this study examined the association between aggressive personality traits and alcohol and drug use.

For the purposes of this study, alcohol use and drug use were the dependent variables. The term substance use was used throughout this paper, and it encompassed both alcohol and drug use.

Aggression as a Personality Trait

Aggression has had a long history of study in psychological research and has been conceptualized and quantified in various ways. For example, Freud (1955) classified aggression as a human drive, which was explained by innate aggressive characteristics mixing with frustration to produce overt aggressive behaviors. Rinsley (1958) followed Freud's aggressive drive theory. He commented that the aggressive drive is often seen over a lifetime in offenders' lack of inhibiting the drive, specifically when the drive is

outwardly expressed through episodes of overt aggressive behavior resulting in criminal activity. Allen (1972) classified aggression as indirect and direct, depending on the object of the aggression. Direct aggression was expressed to the instigator, while indirect aggression was displaced onto another person or object; thus, indirect aggression was maladaptive and thought to increase frustration levels. Allen found indirect aggression to be related to a high incidence of crime. This suggested that when the aggressive drive is inappropriately addressed or coped with, frustration resulting in criminal behavior may occur. He found this association in most of the cultures he studied, but there were also clear distinctions by social and class stratification. Unfortunately, Allen did not expand on the specific cultures he examined, nor did he define social or class stratification within the cultures he studied.

Millon, Simonsen, Birket-Smith, and Davis (2002) suggested that an individual with an aggressive personality “makes violence more likely” (p. 53) than in individuals without the personality trait. Other situational factors or the current mental health of the individual would also contribute to the later behavioral expression of the aggressive personality. This allowed for aggression to be viewed developmentally as a personality trait. Patterson and colleagues (1989, 1991) suggested aggression is a developmental characteristic exhibited at an early age through a pattern of behaviors that remain with the individual throughout life if no intervention is implemented. Longitudinal studies looking at Swedish (Olweus, 1979, 1991) and American (Patterson, Capaldi, & Bank, 1991) youth identified an apparent pattern of aggressive personality traits, beginning in preschool and extending through adulthood. Researchers examined 22 years of longitudinal data (Eron & Huesmann, 1990; Huesmann, Eron, Lefkowitz, & Walder,

1984), concluding aggressive personality traits were stable from 8 to 30 years of age and over the generations of individuals examined. Likewise, in a birth cohort of approximately 800 individuals measured at age 3 and then again at 18, Caspi and Silva (1995) discovered stability in personalities over time, including aggressive traits.

Davis (2000) saw violence as a developmental phenomenon that was associated with violent behaviors and psychological problems in youth in correctional settings. In a sample of community youth, the incidence of aggression was found to be 1.5 to 4 times higher in those with a history of mental health problems (Link, Andrews, & Cullen, 1992). Both the drive theory of aggression and the literature on the developmental aspects of aggression suggested that aggression can be conceptualized as a stable personality trait.

For this study, aggression was studied as a personality trait. Buss and Durkee (1957) created an inventory for examining aggression, termed hostility at that point in time, and the aspects of aggression that are often seen in clinical situations. The researchers separated hostility into an attitude component and a behavior component and conceptualized aggression as a personality trait that could manifest in different types of behavior.

Throughout the years, Buss and Durkee's inventory has been updated several times (Bernstein & Gesn, 1997; Bryant & Smith, 2001; Buss & Perry, 1992) resulting in the current version, the Buss-Perry Aggression Questionnaire – Short Form (BPAQ-SF, Bryant & Smith, 2001). The BPAQ-SF separates aggression into four subscales of Verbal Aggression, Physical Aggression, Anger, and Hostility. Again, it does not assess acts of aggression, but the predisposition to act aggressively across situations via possessing the

aggressive personality trait. Buss and Perry (1992) reported males were more aggressive (i.e., more likely to respond in aggressive ways) than females in their total scores, and on the Verbal Aggression, Physical Aggression, and Hostility subscales. There were no differences for gender on the Anger subscale, which measures the physiological arousal prior to an outward expression of aggression.

While Buss and Perry (1992) examined college students, other research studies (Diamond & Magaletta, 2006; Williams, Boyd, Cascardi, & Poythress, 1996) have used the BPAQ-SF with federal offenders. These researchers observed significant differences between genders in scores on the Physical Aggression subscale. Specifically, Diamond and Magaletta (2006) stipulated that gender differences found in aggression among offenders were a direct result of correct measurement of the participant's aggressive traits and not due to artifacts of the inventory.

Aggressive personality traits are sometimes manifested through aggressive behavior, which allows for other factors, such as alcohol and drug use, to influence the frequency of aggressive behaviors. For those with aggressive personalities, Caprara, Barbaranelli, and Comrey (1992) found using alcohol and ruminating over situations were predictive of later aggressive behavior when compared to those with non-aggressive personalities. Predispositions to aggression may lead to poor or impulsive coping to address the frequently experienced frustration. With aggressive and high-risk individuals, substance use and abuse may become the chosen coping mechanism (Denson, White, & Warburton, 2009; Eftekhari, Turner, & Larimer, 2004; McCormick & Smith, 1995; O'Donnell, Hawkins, & Abbott, 1995; Unger, Sussman, & Dent, 2003). Several studies showed a decrease in substance use after the participants learned positive coping

mechanisms (Fite, Colder, Lochman, & Wells, 2008; Forman, Linney, & Brondino, 1990). Coping with aggressive impulses through substances increased the likelihood of later violent or criminal behaviors (Cartier, Farabee, & Prendergrast, 2006; Crowe, 1998; Grann & Fazel, 2004; Greenfield, 1998; Martin, 2001; Parker & Auerhaun, 1998; Wagner, 1996; Wells, Graham, & West, 2000). Aggressive behavior occurred at a higher base rate in a prison setting than in a community setting (Wang, 1998), suggesting incarcerated individuals embody aggressive traits more frequently than those in the community. An overwhelming majority of offenders are incarcerated for drug-related offenses, with many offenders incarcerated as a result of their own alcohol or drug use or abuse. The prevalence of substance abuse in the corrections system highlighted the need to examine linkages between substance use and aggressive personality.

Understanding the relationships between levels of aggressive personality traits and alcohol and drug use could aid in forming prevention programs or altering the intervention programs already in existence. There are several Bureau of Prisons facilities that have psychological and other treatment services available to offenders, specifically in the areas of substance use and abuse. These programs include the Residential Drug Abuse Treatment Programs (RDAPs), Non-Residential Drug Abuse Treatment Programs, and therapeutic groups inside facilities focused on drug abuse, developing and maintaining positive coping skills, and anger management. Research looking at participants in the RDAP programs showed inmate misconduct, including acts resulting from aggressive personality traits, was significantly decreased when compared to offenders not participating (Federal Bureau of Prisons, 2007). However, these research findings only pertain to the small group of offenders who participated in the RDAP program; the

findings do not address substance use issues for these individuals with aggressive personalities who are in the general prison population. Therefore, it was important to examine the association between aggressive personality characteristics and alcohol and drug use in order to suggest more effective treatment programs.

The current study examined the association between aggression as a personality trait and reported substance (alcohol and drug) use. Aggressive personality traits were conceptualized as having cognitive, behavioral, and emotional components. Substance use was conceptualized as a coping modality for aggressive individuals (Denson et al., 2009; Eftekhari et al., 2004; McCormick & Smith, 1995; O'Donnell et al., 1995; Unger, et al., 2003) that led to an increased likelihood of engaging in violent or criminal acts.

Substance Use as a Result of Coping With Aggressive Traits

A large body of research demonstrated that individuals often turn to alcohol and drug use as coping mechanisms to assist with a variety of problems (Compas, 1993, 1995; Damphousse & Kaplan, 1989; Kasdin, 1993; Mechanic, 1983; Nurmin, 1997; Pandina, Labourie, Johnson, & White, 1990; Petersen, Leffert, Graham, Alwin, & Ding, 1997; Schulenberg, Maggs, Steinman, & Zucker, 2001; Wills & Hirky, 1996; Winters, 2001). Specifically, the Overload Model (Damphousse & Kaplan, 1989) outlined health risks as a potential outcome of experiencing developmental changes. As these changes became too difficult to manage with current coping methods, health-risk behaviors, like substance use, may become an alternate strategy for coping. According to Davis (2000), aggressive youth displayed a lack of skills related to finding a positive peer group and relating to its norms, in addition to inappropriately interpreting and responding to social interactions. These aggressive youth may turn to substances to help them fit in or cope

with unpleasant social interactions. Substance use and family stressors were also found to be equally associated with aggressive behaviors in youth (Davis, 2000). Denson et al. (2009) found alcohol use and rumination about minor problems were magnified when there is an underlying aggressive personality. Moreover, Compas (1993, 1995) explained that maladaptive coping styles, specifically using alcohol and other drugs, were likely to develop during the biological, cognitive, emotional, and social changes of adolescence.

In studying adolescents, Unger et al. (2003) examined interpersonal conflict strategies and the relation to substance use. Participants who exhibited an aggressive approach to dealing with conflict, either through physical or nonphysical aggression had increased substance use. Male incarcerated adolescents were also found to use substances to manage mood and cope with problems (Eftekhari et al., 2004). Fite et al. (2008) reported aggressive personality traits were associated with an increased risk of beginning to use alcohol, tobacco, and marijuana in a sample of fourth to ninth graders. In another study, teachers rated aggressive traits and behaviors for boys in elementary school. Aggressive traits and behavior exhibited early in boys' lives were found to be predictive of later delinquency and drug abuse (O'Donnell et al., 1995).

Gender and Race Differences in Aggression and Substance-Related Offenses

According to the Bureau of Justice Statistics (2009a), victims in about 1 million violent crimes in 2002 reported that they perceived the offender was under the influence of alcohol at the time of offense. Also, about 20% of these victims reported their perceptions that the offender was under the influence of other drugs as well (Bureau of Justice Statistics, 2009a). However, these statistics were not separated into gender of the offender. As most statistics on aggressive behaviors and violent crimes are aggregated, it

is difficult to see the impact of gender and racial differences in how aggressive personality manifests itself. However, we understand characteristics about federal offenders, and these characteristics demonstrated the importance for examining how gender and race differences in an aggressive personality might be related to substance use. For example, the lifetime chance of an individual being incarcerated is higher for males than females and higher for African Americans than Whites (Bureau of Justice Statistics, 2009b). In federal prison facilities, approximately 10% of inmates are incarcerated due to a violent offense and approximately 57% of inmates are serving time for a drug offense. In 2004, 79% of federal inmates reported using at least one type of drug prior to incarceration, including alcohol and illicit substances (Bureau of Justice Statistics, 2009c). Females account for approximately 14% of violent offenders and 17% of drug offenders (Bureau of Justice Statistics, 2009b). With the prevalence of violent and drug use offenses in the correctional system, understanding the relationship between an aggressive personality and subsequent alcohol or drug use is clinically important, as it could impact treatment and recidivism.

Gender Differences in the Use of Substances to Cope

Initially as juveniles, males and females do not differ in their alcohol consumption; however, females drink far less than males as adults (Holder, 2006; USDHHS, SAMHSA, 2009). Males report using more illicit drugs than females (United States Department of Health & Human Services, Substance Abuse & Mental Health Services Administration, 2009). However, it is not clear that the relationships between aggression and substance use differ by race or gender.

Giancola (2002) examined males and females for the purpose of looking at trait anger on the alcohol-aggression relationship. He found that trait anger (i.e., a personality characteristic) was positively related to later aggression for both males and females. However, there was a key gender difference in that males with trait anger experienced an increase in exhibited aggressive behaviors after drinking alcohol. It was not clear whether the men differed in their alcohol use as a result of their anger, but it suggested the importance of examining gender differences in the aggressive personality-alcohol relation.

Harrell and Karim (2008) found that males reported more frequent drinking and used drinking more to cope with problems than females. The motivation for drinking for each gender was different as well. Males reported using drinking as a way to “feel high,” while females in the sample self-medicated depressive symptoms through drinking. Similarly, Bischof, Rumpf, Meyer, Hapke, and John (2005) found that males and females differed in the motivation to drink, with males reporting wanting to drink in positive situations and females reporting drinking while coping with negative situations. Severity of alcohol dependence did not affect the gender differences found in motivation to drink.

In a longitudinal study of adolescents, White, Brick, and Hansell (1993) examined gender differences in aggression and alcohol use. The researchers found that early aggressive traits in males were predictive of later alcohol related problems, increased alcohol use, and alcohol-related aggression. These results were not found for female participants. In a matched sample design on age and gender with adults in an inpatient facility, Blankfield (1991) examined aggressive traits and criminal activity for individuals that were defined as alcoholics. She found females participated in less major criminal

activity than males and that there was a possibility for criminality and alcoholism to co-occur in her participant sample. Specifically, participants with aggressive traits that were also defined as alcoholics committed a significantly greater proportion of criminal activity when compared to other participants in the sample.

Although the literature supports an association between aggressive characteristics and substance use, the measurement of aggressive personality traits has varied widely and little has been done with the offender population. Thus, this research study sought to examine the associations between aggressive personality traits and alcohol and drug use and examine whether those associations differ for male and female federal offenders.

Racial Differences in the Use of Substances to Cope

There are also ethnic group differences in substance use rates and aggressive behavior. White and Hispanic males have been found to drink alcohol at greater rates than African American males (U.S. Department of Health & Human Services, Substance Abuse & Mental Health Services Administration, 2009) and also reported a greater likelihood for alcohol-related problems and criminal activity (Holder, 2006). African Americans reported using illicit drugs more than Whites (Holder, 2006).

Gillespie (2005) surveyed male incarcerated offenders in state facilities in an attempt to study the relationship between self-esteem, substance use, aggression, and violent and criminal behavior. He found no racial differences on his aggression measure, yet African Americans in his sample displayed a much greater set of aggressive behaviors prior to incarceration and while incarcerated when compared to Whites. Gillespie attributed the difference in exhibited behaviors to other factors, like poverty and

substance use prior to incarceration. He found the African American males in his sample used more substances prior to incarceration than White males in his sample.

There is surprisingly little research on racial differences in coping by using substances. However, there is an influx of African Americans, both males and females, into the federal prison system. Learning more about racial differences in aggressive personality traits and substance use through this study would add information to the literature base. Explicating racial group differences in the association between aggressive personality traits and substance use could aid in treatment.

In summary, there is a lack of research on the relationship between aggressive personality traits and alcohol and drug use problems in federal offenders. Because there is not a definitive answer related to gender (male or female) or race (White or African American) and the relationship of aggressive personality traits and substance abuse, this study examined the potential moderating effects of race and gender on the relationship between aggressive personality traits and substance abuse problems.

Hypotheses

The following research questions were examined:

1. Was there a relationship between aggressive personality traits and alcohol use problems in federal offenders?
 - 1a. If so, was this relationship moderated by gender (male or female)?
 - 1b. If so, was this relationship moderated by race (White or African American)?
2. Was there a relationship between aggressive personality traits and drug use problems in federal offenders?
 - 2a. If so, was this relationship moderated by gender (male or female)?

2b. If so, was this relationship moderated by race (White or African American)?

It was hypothesized that aggressive personality traits would be positively related to alcohol use and drug use problems and that the relationship would be moderated by gender, such that the relationship would be stronger for males than females. It was also hypothesized that the relationship between aggressive personality and substance use would be moderated by race such that African Americans would demonstrate a stronger positive relationship between aggressive personality traits and drug use, while Whites would demonstrate a stronger positive relationship between aggressive personality traits and alcohol use.

Chapter II: Literature Review

As stated previously, it is important to study the relation between offenders' aggressive personality traits and substance abuse patterns. There is a lack of literature explaining this relationship and how it might differ by gender and race among offenders who are incarcerated in federal prisons. Understanding these relationships could lead to potential improvements in treatment intervention programs. This literature review examined aggression as a personality trait and the ways that alcohol and drug use problems are influenced by an aggressive personality. It also reviewed literature on gender and racial group differences in aggression and substance use.

Aggression as a Personality Trait

In line with the view of aggression as a personality construct (Buss & Durkee, 1957; Buss & Perry, 1992), Megargee (1982) summarized theories that consider aggression as a human characteristic, including Lorenz (1966, as cited in Megargee) and Freud (1955, as cited in Megargee). Lorenz viewed aggression as a drive similar to hunger or thirst, while Freud explained the aggressive drive as one of two that governs behavior for individuals. Megargee believed individuals' violent tendencies were exacerbated when inhibitions were lowered, often by substance use. Also, he noted several typologies for individuals that commit crimes based upon many research study findings in the literature. He composed taxonomies for many crimes; aggressive personalities were found to be included in the taxonomy for assault, spousal abuse, and forcible rape.

Similar to aggressive drives, several longitudinal studies support aggression as a developmental characteristic (Caspi & Silva, 1995; Eron & Huesmann, 1990; Huesmann,

Eron, Lefkowitz, & Walder, 1984; Kellan, Brown, & Fleming, 1981; Olweus, 1979; Olweus, 1991). Kellan et al. (1981) examined aggressive personality traits in students in first grade and third grade, and then followed up again when the students were in ninth grade. Researchers assessed the participants by reviewing social adaptation in first graders, clinical interviews with the mother and teacher observations of shyness, aggressiveness, and learning problems at all time points, and a “What’s Happening?” questionnaire created by the researchers for the teenagers. Shyness was found to be an inhibitor of later alcohol and substance use, while aggressive traits were found to increase alcohol and substance use by 1-1.5 times compared to those that were not aggressive. These longitudinal data supported a link between aggressiveness as a personality construct in youth and later alcohol and substance abuse.

Caspi and Silva (1995) examined the aggressive personality and resulting behaviors of approximately 800 children at age 3 and again at age 18. The children they categorized as undercontrolled showed consistent aggressiveness from age 3 to age 18; the children categorized as inhibited showed the least aggressiveness. At age 3, the participants in the undercontrolled group demonstrated “irritability and distractibility” characteristics and behaviors (p. 489), and the participants in the inhibited group demonstrated distractibility and “inhibition in novel settings” (p. 489). At age 18, when all participants took the Multidimensional Personality Questionnaire (MPQ; Tellegen, 1982), the undercontrolled participants scored the highest on the Aggression subscale, indicating that these individuals had a predisposition to engage in aggressive type acts. In contrast, the inhibited group scored the lowest, suggesting these participants did not want to engage or even witness aggressive behaviors and would avoid these acts at all costs.

In conducting a longitudinal study spanning 22 years, Huesmann et al. (1984) collected data from more than 600 participants, their parents, and their children. The researchers conceptualized aggression as a personality trait that they found to be stable in three generations of participants; the stability was more pronounced in males. Although situational factors sometimes influenced outward aggressive behaviors, the researchers noted that the participants that displayed aggressive personalities at 8 years old were also the ones that displayed aggressive personalities when measured at 30 years old. The researchers also found displays of early aggressiveness were predictive of later criminal behavior, physical aggressiveness, and spousal abuse.

Olweus (1979) reviewed several longitudinal studies on the aggressiveness of boys and indicated that aggressiveness is a stable trait across time and across research studies. The reviewed studies incorporated traits of aggression in addition to measuring aggressive behaviors. Based upon the findings from multiple studies, Olweus suggested that aggression is a personality trait and is often later expressed by aggressive behaviors that are observable.

Buss and Durkee (1957) initially began measuring hostility as a personality construct with several subtypes when creating their first inventory, the *Hostility-Guilt Inventory*. There was no initial theoretical underpinning in constructing the initial 1957 questionnaire, other than wanting to measure hostility more accurately than the questionnaires measuring hostility at the time. In 1992, Buss and Perry used the baseline framework of the initial hostility inventory to create *The Aggression Questionnaire*, allowing for aggression to be categorized into four subtypes: Verbal Aggression, Physical Aggression, Anger, and Hostility. This questionnaire allowed researchers to “discover

not only how aggressive a person is but also how the aggression is manifested” (p. 452). Buss and Perry defined physical and verbal aggression as involving “hurting or harming others” (p. 457), anger as involving “physiological arousal and preparation for aggression” (p. 457), and hostility as consisting “of feelings of ill will and injustice” (p. 457). Aggressive individuals were thought to have predispositions to respond to situations in aggressive ways.

Aggression and Alcohol Use Problems

Alcohol is often associated with the display of aggressive behaviors (Bushman & Cooper, 1990; Collins, 1991; Pernanen, 1976, 1981, 1991). Andrews and Bonta (1998) posited the use of alcohol as a disinhibiting factor in controlling aggressive behavior. There is a wealth of literature (Boles & Miotto, 2003; Cartier et al., 2006; Crowe, 1998; Dembo, Wareham, & Schmeidler, 2007; Grann & Fazel, 2004; Greenfield, 1998; Martin, 2001; Parker & Auerhahn, 1998; Wagner, 1996; Wells et al., 2000) documenting aggressive and violent behaviors as a result of consumption of alcohol or substances. While the link between substance use and later aggression is well documented, there is a less well-developed body of literature suggesting individuals with aggressive personalities are predisposed to alcohol and substance use prior to criminal offending (Caprara et al., 1992; Giancola, 2002). The current study focused on the less-studied association between aggressive personality and subsequent substance use related problems.

Denson et al. (2009) examined how alcohol use and rumination affect individuals with aggressive personalities. One hundred college students were given alcohol or a placebo and then provoked surrounding a certain situation to ruminate or distract. This

study examined trait displaced aggression, defined as an inconsistent display of aggression exhibited following a “second, subjectively annoying provocation (referred to as the trigger)” (p. 673). The researchers found trait displaced aggression served as a moderator on alcohol-induced trait displaced aggression and psychopathy. This effect was more pronounced when the participant had lower inhibitions due to alcohol use or predispositions to aggressiveness. Based on the findings, the researchers suggested individuals high in aggressive personality traits should refrain from alcohol use and work to distract themselves from situations instead of engaging in constant rumination, which only served to feed the trait displaced aggression.

O’Donnell et al. (1995) sought to examine aggressive boys and predict their later delinquent and substance use behaviors. Over a three and a half year period, the researchers followed approximately 50 aggressive boys, as indicated by teacher and parent ratings, who were enrolled in urban middle schools in one school district. Half of the boys were White and half African American; there were no socioeconomic differences between the racial groups. Among these boys that were classified as aggressive, ethnicity was found to be a significant predictor at age 13 and 14 for later substance use, in that Whites were found to use substances more at this age when compared to African Americans. While use of substances was found to be greater for Whites, the researchers did not measure problems related to substance use behaviors.

Fite et al. (2008) examined childhood reactive and proactive aggression and the relation to first use of substances in a sample of 126 aggressive children. Reactive aggression was defined by examining aggressive behaviors after a child perceives to be threatened, and the researchers viewed this aggression as “an angry and hostile reaction

to frustration” (p. 262). On the contrary, proactive aggression was a child behaving a certain way for an external reward. Here, aggression “serves the function of helping one obtain a desired goal” (p. 262). Initiating substance use has been linked with increased risks for problems related to substance use; aggressiveness had not previously been measured in relation to first time substance use. For those participants with aggressive personality traits, proactive aggression was predictive of the child initiating alcohol use at an earlier age and an increase in frequent drug use. With reactive aggression, the participants were more likely to initiate tobacco and marijuana, not alcohol, use at an earlier age.

Aggression and Drug Use Problems

While there was great support for the relationship between aggressive personality traits and alcohol use, there was little evidence for the same relationship for aggressive personality traits and drug use (Abadinsky, 1993; Goode 1993; Valdez, Kaplan, Curtis, & Yin, 1995). Most often, research has focused on the disinhibiting factors of substances on aggressive behaviors, specifically related to committing crimes.

Broadly, use of illicit drugs predisposes individuals to subsequent violent behaviors (Friedman, 1998). Researchers (Friedman, 1998; Kaplan, 1995) noted substance use seen in individuals that were also diagnosed with Antisocial Personality Disorder. These individuals often justified their self-medicating with alcohol or drug use as a method to reduce their violent tendencies. Although no studies have studied aggressive personality and subsequent substance use, researchers have examined other characteristics of deviance or rebelliousness that might be associated with aggression.

Kandel (1978) completed longitudinal studies with adolescents and described factors that impact an individual's decision to use alcohol or drugs, including depression, rebelliousness, crime, and aggression. Kandel's results pointed out that these factors preceded the beginning of substance use. Smith and Fogg (1978) found similar results preceding the initiation of adolescents' marijuana use classified into early use, late use, and non-use. Individuals that used marijuana reported greater factors, like crime and aggression, when compared to non-users. Jessor (1976) also examined the onset of marijuana use through a longitudinal study with high school students. He found similar results to Smith and Fogg, in that initiating use was predicted by a higher tolerance for deviance, more influence by peers, approval for drug use in the student's environment, and less parental control and support. He also reported the same results for adolescents beginning to use alcohol and indicated that the relationship between onset of alcohol and drug use was also related to other problematic behaviors, like problem drinking, risky sexual behaviors, and engaging in protests.

Unger et al. (2003) examined adolescents and the ways they solved conflicts related to substance use. Specifically, physical aggression was related to high risk of drug, cigarette, alcohol, and marijuana use, while nonphysical aggression was only related to high risk of cigarette and alcohol use. The researchers found that conflict management skills as a coping strategy served as a protective factor, as seen in the nonaggressive adolescents in the sample. Eftekhari et al. (2004) examined male adolescents that were incarcerated, studying alcohol and marijuana use as a coping mechanism. They found that participants used substances as a way to manage mood and alleviate distress, along with using substances to cope with problems. Expressing anger

and using avoidance coping mechanisms predicted alcohol and marijuana use and use-related consequences for the participants in this study.

Gender Differences in Aggression

When looking at gender and aggression, most research reported differences in types or severity of aggression by gender. For example, females were often physically weaker than males, thus they may not use physical aggression as much as males (Pogrebrin, 2004). Campbell (1993) explained the gender difference as being “not in their personalities but in their thinking, and their differing beliefs about what their hostility or anger means is manifested in their actions” (p. 70). Sax (2005) also showed the differences in aggressive actions with children as young as 2 years old, where girls are picking out fairy tales and verbally fighting with each other and boys are physically fighting on the playground and exploring aggressive behaviors through competition in sports and video games. However, gender differences were not found in a review of the literature on aggression in males and females (Frodi, Macauley, & Thome, 1977). This result was likely due to the way aggression as a construct was defined; it was defined as behavior with the intention of “injury of some person or object” (p. 635). The definition of aggression for their research study differs from the operationalization of aggression for the current study.

Roe-Sepowitz (2009) examined male and female juvenile offenders that had been charged with homicide in the Florida juvenile system. Females scored significantly higher on the anger/irritability scale of the Massachusetts Youth Screening Instrument – 2nd version (MAYSI-2; Grisso & Barnum, 2000) when compared with males. While

males in this sample actually had higher rates of alcohol and substance use, females displayed more problematic behaviors as a result of alcohol or drug use.

Harris (1996) examined aggression using the Buss-Perry Aggression Questionnaire (Buss & Perry, 1992) in two samples, one of college students and one of military personnel. Males from both samples scored significantly higher than females on the Physical Aggression subscale of the questionnaire. The literature suggests that there are some gender differences in the internal experience and outward expression of aggression, but they may not be as extreme as commonly believed.

Gender Differences in Alcohol and Drug Use

There are also gender differences in the use and abuse of alcohol and drugs. Difficulties with alcohol abuse sometimes led to crime, against property, against others, or prostitution (August, 1987). As with life difficulties and types of crime, the relationship between alcohol abuse and violent behavior has been demonstrated more clearly for males than females (Friedman, 1998). While the relationship between violent behavior and drug use was also demonstrated clearly, there was not a distinct difference between males and females (Friedman, 1998).

Although the gaps are narrowing, there are differences between males and females in drinking consequences, frequency of use, age of first drink, and the event triggering the drinking episode. Males reported more frequent use and greater consumption than females, yet females reported a recent increase in alcohol-related consequences (Herd, 1988). The trigger event for alcohol and drug use in females was likely to be categorized as a stressful event when compared to males (Herd, 1988). Motivation to use remained different for males and females; Langan and Pelissier (2001a)

and Herd (1988) found that females have a stronger desire to use to alleviate pain, while males used for pleasure-seeking reasons. As research showed gender differences in aggression and alcohol and drug use, it was important to examine if the relationships between aggression and alcohol and drug use differ by gender.

Racial Differences in Aggression

In examining violence in urban neighborhoods, Bennett and Fraser (2000) found a disproportionate number of African American males were victims and perpetrators of violent crimes, especially homicides. The authors hypothesized that the violence was confounded by poverty, making it difficult to ascertain any information about personality constructs, such as aggression. Similarly, several research studies found that African Americans commit more crimes than Whites (Elliott & Ageton, 1980; Kelly, 1977; Wolfgang, Figlio, & Sellin, 1972). These studies compared self-report information to actual arrest records, but neglected to control for other factors, like neighborhood violence or poverty.

After reviewing literature on environmental and societal influences on aggression in African American males, Thomas (2007) suggested that African American males were more aggressive than other racial groups, but related their predisposition to aggression with their exposure to economic, environmental, and societal discrepancies often seen in the poverty-stricken African American neighborhoods. He outlined a poor job market, racial discrimination, limited prospects, and lack of encouragement for success as leading to increased aggression and violence among males in the African American communities. Thomas asserted that individuals were growing up in an environment where they witnessed a bleak future in the life of drugs, the criminal justice system, or death. In this

environment, African American males learned that they must be aggressive in their overall personality style and actions in order to survive. Realistically, this result caused a vicious feedback loop of reinforcing aggressive personality traits and behaviors for survival.

Berg and DeLisi (2006) assessed misconduct among inmates incarcerated in state facilities. Prior literature documented inmates from racial minorities were more violent than White inmates, when examining records of assaults on staff and other inmates and other prison misconduct (Cao, Zhao, & Van Dine, 1997; Craddock, 1996; Flanagan, 1983; Goetting & Howsen, 1986; Huebner, 2003; Myers & Levy, 1978; Sorenson, Wrinkle, & Gutierrez, 1998; Wooldredge, 1994; Wooldredge, Griffin, & Pratt, 2001). In contrast, Berg and DeLisi (2006) did not find differences in the rates of violent misconduct between White and African American male offenders. However, in their sample, they found African American female offenders were more violent than White female offenders.

Although he did not control for neighborhood or other socioeconomic factors, Gillespie (2005) did not find racial group differences in the characteristic of physical aggressiveness, which he measured using an adapted scale from the Buss Perry (1992) physical aggression subscale. He studied incarcerated offenders in state prisons, and found that White and African American males differed in the behaviors resulting from their aggressive dispositions. African Americans tended to express their aggression outwardly when compared to their White counterparts. This is an important distinction to make and one that could be very important for treatment.

Racial Differences in Alcohol and Drug Use

There are conflicting reports regarding racial differences in alcohol and drug use. Surveys comparing African American and White women showed abstainers in most age groups of African American women, but did not show abstainers in White women of any age (Harper & Saifnuurian, 1991; Herd, 1988). Additionally, several researchers found lower rates of drinking in African American youth when compared to White youth, as well as sizeable rates of drinking in White youth when compared to African American youth (Cahalan & Cisin, 1968; Dawkins, 1976; Globetti, 1970; Herd, 1988; Neff, 1986). Lusane (1997) reported that society had isolated drug use and dealing to poor African American neighborhoods as a method of economic survival, and thus selling drugs was the largest source of employment of African American youth. He posited Whites were the most common substance users and sellers, but were underrepresented in the prison population.

Focusing on alcohol and illicit drug use in White males arrested in San Antonio, Valdez et al. (1995) found a positive relationship between alcohol and aggressive crimes, specifically for frequent drinkers. However, illicit drug use was not as effective as a predictor of aggressive crimes when compared to alcohol use for White males.

Finally, Friedman (1998) reported findings from a study examining an urban African American sample of males and females in Philadelphia. For both males and females in his sample, a reported history of substance use at 24 years old predicted a significant increase in violent behavior at 26.5 years old. Further, a diagnosis of Alcohol Abuse predicted an increase in violent behavior for both genders, but the use of alcohol

only predicted males' subsequent violent behavior. Again as in previous research, aggressive personality traits were not measured.

While the research regarding racial group differences in alcohol and drug use and aggression is mixed, there is evidence pointing to Whites exhibiting more aggressive behaviors when using alcohol. In contrast, African Americans seemed to display more aggressive behaviors when using drugs. It is not known if the relationship between aggressive personality characteristics and alcohol and drug use differs by racial group, but it is important to test for such differences.

Why Study Offenders?

It is important to study offenders for multiple reasons. Rates of aggression and substance use in offenders are high and contribute to a great deal of inmate misconduct while incarcerated and recidivism after release. Prison populations have greatly increased over the past 10 years due to a crackdown on illegal drugs (Christie, 1994; Irwin & Austin, 1994). Economic costs to house offenders are immense (Lanier, 1998). In an effort to decrease these costs and protect staff and inmates, intervention and treatment programs need to be as efficient as possible in treating offenders' problems. Assessing for aggressive personality traits and understanding the association with alcohol and drug use could lead to changes in intervention strategies.

A history of alcohol and drug use can predict recidivism among offenders (Andrews & Bonta, 1998). Pernanen (1976, 1981) suggested appropriate treatment of alcohol and drug abuse problems while incarcerated would reap great economic and health benefits, as many offenders experienced consequences related to problem drinking. There is a debate in the literature as to whether observable differences in outcomes in

males and females after treatment were seen and if treatment should be tailored for each gender (Beckman, 1994; Belknap & Holsinger, 1998; Bloom, 1997; Garcia Coll, Miller, Fields, & Mathews, 1998). Examining how gender and race moderated the relationship between aggressive personality traits and alcohol or drug use could suggest different treatment strategies for males and females and for Whites and African Americans.

Therefore, the current study's focus examining the effect of aggressive personality traits on alcohol and drug use in federal offenders and the potential moderating effects of gender and race is important in addressing the lack of available research.

Chapter III: Methods

Participants

Participants in this study were 260 male and 96 female offenders ($n = 356$) incarcerated in federal institutions. There were 185 White participants and 171 African American participants, with an age range of 19 to 70 years and a mean age of 35.39 years (mode = 32 years). A post hoc power analysis indicated 356 participants yielded sufficient power. The reported highest degrees attained by participants were: no degree, 86; GED, 95; high school diploma, 144; 2 year college degree, 7; 4 year college degree, 12; and graduate degree, 3. Nine individuals did not provide this information. The majority of the participants were never married ($n = 126$) with 82 participants reporting being married and 49 reporting being divorced. The remainder reported common law marriage, separated or widowed, or had missing data. The security level of participants ranged the available levels in the BOP system, with two participants in a minimum security facility, 211 in low security facilities, 69 in medium security facilities, and 74 in high security facilities. Participants ranged from reporting no prior record ($n = 113$) to a minor prior record ($n = 31$) to a serious prior record ($n = 212$). Data were archival and were collected by the Bureau of Prisons.

Instruments

Personality Assessment Instrument (PAI, Morey, 1991). The Personality Assessment Inventory is a 344-item inventory often used to assist in psychological diagnosis and treatment planning. There are 22 scales: 4 validity scales, 11 clinical scales, 5 treatment scales, and 2 interpersonal scales. The administration time is one hour or less. The PAI was written at a fourth grade reading level and for native English speakers. All

items are responded to on a 4-point scale (1: *False, Not at all True*; 2: *Slightly True*; 3: *Mainly True*; 4: *Very True*). Scores are summed for each scale and converted to *T* scores, with the mean of 50 and a standard deviation of 10.

The four Validity Scales (Inconsistency, Infrequency, Negative Impression, Positive Impression) indicate if the participant is responding consistently and deliberately, or if the participant is trying to malingering or present a positive impression. Several studies include participants that have validity scores up to two standard deviations above the mean (Walters, Diamond, Magaletta, Geyer, & Duncan, 2007; Walters & Duncan, 2005; Walters, Duncan, & Geyer, 2003). However, this study took a more conservative approach by excluding participants if their validity profiles showed any scores greater than one standard deviation above the mean.

This study utilized two of the clinical scales, Alcohol Problems and Drug Problems, for measures of the dependent variables. The Alcohol Problems and Drug Problems scales center around problems and penalties associated with alcohol or drug use or dependence prior to conviction. Each scale has a total of 12 items and asks about frequency of use, dependence, and consequences experienced as a result of use. Items are worded to ask directly about use. Research findings suggested individuals using alcohol and drugs will self-report honestly about use or maybe even over-estimate use and related problems (Bernadt, Mumford, Taylor, Smith, & Murray, 1982; Skinner, Holt, Sheu, & Israel, 1986; Sobell & Sobell, 1975). Scores are summed to calculate the Alcohol Problems and Drug Problems subscale scores. Higher scores indicate greater use and negative consequences.

In constructing the instrument, Morey (2007) reported comparable internal consistency estimates across her samples, regardless of race/ethnicity, age, or gender. Initial alpha coefficients were reported by Morey for a census sample ($n = 1,000$) and a clinical sample ($n = 1,246$). For the Alcohol Problems scale, the alpha coefficients were .84 and .93, respectively. For the Drug Problems scale, the alpha coefficients were .74 and .89, respectively. As expected, the coefficients were stronger on these scales for the clinical populations, as these populations are more likely to have engaged in substance use and experienced negative consequences as a result. In a later examination of 75 adults in the community, Morey assessed test-retest reliability 24 days apart. The reliability for the Alcohol Problems scale was .94 and the Drug Problems scale was .88, indicating a strong test-retest reliability. Internal consistency reliability was calculated for the Alcohol and Drug Problems scales and was found to be .71 in the current sample.

Morey (2007) reported that the PAI was successfully validated against several personality assessments, including the NEO-PI Excitement-Seeking, Hostility, and Impulsivity subscales (Costa & McRae, 1992) and several MMPI (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989) scales, including the Psychopathic Deviate and Hypomania Clinical Scales and the Family Problems Content Scale. Additionally, Edens and Ruiz (2008) reported several subscales of the PAI evidenced criterion validity when identifying diagnoses of patients in a prison psychiatric unit.

Buss-Perry Aggression Questionnaire – Short Form (BPAQ-SF, Bryant & Smith, 2001). The BPAQ-SF has 12 items that separate into four subscales (physical aggression, verbal aggression, anger, and hostility), with a 5-point rating system (1 = *very unlike me* to 5 = *very like me*). Items include “Given enough provocation, I may hit

another person” and “I wonder why sometimes I feel so bitter about things.” The questionnaire assesses aggression as a personality trait, broken into cognitive (hostility), behavioral (physical and verbal aggression), and emotional (anger) components (Buss & Perry, 1992). Scores are summed for the questions in each subscale, producing four subscale scores and one total aggression score. Williams et al. (1996) suggested the total score is an accurate measure of the aggression construct. The total score was used in the current study.

In reducing the length of the original 29-item instrument to the 12-item short form version, Bryant and Smith (2001) used principle components analysis to test the model fit using only 12 items and reported fit indices in the acceptable range (GFI = .94). Diamond and Magaletta (2006) and Diamond, Wang, and Buffington-Vollum (2005) validated the BPAQ-SF with federal offenders. Reliabilities were established with this population using this instrument. Along with federal offenders, this instrument has been validated with German (von Collani & Werner, 2005) and Hong Kong Chinese participants (Maxwell, 2007). Additionally, the BPAQ-SF was found to be valid when contrasted with several other instruments measuring similar constructs, including concurrent validity with the Personality Assessment Instrument (Diamond & Magaletta, 2006) and convergent validity with Novaco’s (1994) Anger Scale (Williams et al., 1996).

Buss and Perry (1992) reported adequate internal consistencies for the 29-item questionnaire, including .89 for the total scale, .85 for the physical aggression subscale, .72 for the verbal aggression subscale, .77 for the hostility subscale, and .83 for the anger subscale. Bryant and Smith (2001) and Williams et al. (1996) found similar alpha coefficients. When examining this questionnaire with individuals in jail, Williams et al.

(1996) found the following alpha coefficients: .92 for the total scale, .81 for the physical aggression subscale, .50 for the verbal aggression subscale, .82 for the hostility subscale, and .76 for the anger subscale. When using the BPAQ-SF with federal offenders, Diamond and Magaletta (2006) found adequate and comparable reliabilities across gender. Reported subscale reliabilities ranged from .62 to .77. Internal consistency reliability was calculated for the BPAQ-SF total scale and was found to be .78 in the current sample.

Psychology Services Inmate Questionnaire (PSIQ, Federal Bureau of Prisons, 1993). The Psychology Services Inmate Questionnaire is completed by the offender as part of the intake screening process when entering a new institution. The PSIQ includes demographic questions, questions about substance use and mental health history, and questions to ascertain need for psychological services during incarceration. For this study, demographic information, including age, gender, race, highest degree attained, and marital status, was obtained from this questionnaire.

Procedures

Data were collected in 2004 by psychologists in federal correctional institutions throughout the five regions of the Bureau of Prisons. Offenders completed the PSIQ upon intake to the new institution. After completion of the PSIQ, offenders were given the option to participate in the operations data collection. Upon agreement to participate, offenders completed several measures, including the PAI and BPAQ-SF. The PAI and BPAQ-SF were administered in a group format using a standardized procedure throughout all locations. Offenders were able to opt out at any time without penalty. No

incentives were offered. All identifying information was deleted from the database to ensure anonymity of participants.

Before conducting data analyses for this study, approval was granted by the University's Institutional Review Board and the Institutional Review Board for the Federal Bureau of Prisons. Data were delivered in a confidential manner to the researcher for analyses.

Chapter IV: Results

To answer the primary research questions, the data were analyzed using four hierarchical regression analyses. The independent variable was the total score on the BPAQ-SF, with the dependent variables being the scores on the PAI Alcohol Problems and Drug Problems subscales. Separate regressions were completed for alcohol problems and drug problems. Gender and race were used as moderator variables in the analyses. As recommended by Frazier, Tix, and Barron (2004), the BPAQ-SF scores were centered by converting scores to z scores in order to reduce multicollinearity in the interaction term. In the first regression (alcohol), the control variables, BPAQ-SF, and a dummy variable indicating gender were entered at the first step. The interaction term created by taking the product of gender and the centered aggressive personality scores was entered at the second step, and the change in variance was examined to determine if the interaction accounted for a significant amount of variance indicating moderation. A similar analysis was conducted testing gender as a moderator of the aggressive personality-drug use problems relationship. When testing gender as a moderator, males were coded as -1 and females were coded as +1. Two additional analyses examined the relationship of aggressive personality and alcohol and drug problems and whether it was moderated by race. When testing race as a moderator, Whites were coded as -1 and African Americans were coded as +1. When moderating effects were detected (i.e., a significant increase in variance explained by the interaction term), additional analyses were conducted to determine how the relationship differed by gender or race.

It was hypothesized that there would be a positive relationship between aggressive personality traits and alcohol use and between aggressive personality traits

and drug use. It was also hypothesized that these relationships would be stronger for males than females, and stronger for Whites with alcohol use and stronger for African Americans with drug use.

The final sample size included 356 participants with complete data and valid PAI profiles. The means, standard deviations, and correlations among the variables are included in Table 1. The means for alcohol use were as follows (with standard deviations in parentheses): Males 58.34 (15.48), Females 55.48 (15.94), Whites 58.74 (16.71), and African Americans 56.30 (14.32). The means for drug use were as follows (with standard deviations in parentheses): Males 66.12 (18.82), Females 70.71 (20.19), Whites 70.41 (21.52), and African Americans 64.06 (15.92). Examination of the distributions did not indicate any issues with skewness or kurtosis. An analysis of residuals did not indicate any problems with normality, homoscedasticity, or multicollinearity in the data (all variance inflation factors were less than 2) or potentially influential data points in the participant sample. Preliminary regression analyses were conducted to test all of the variables in the study, as well as for the influence of the four validity scales on the prediction of drug or alcohol use scores. Because these analyses suggested that two validity scales were influential, the Positive Impression Management scale was used as a control in the regression analyses examining alcohol problems, and the Positive Impression and Inconsistency scales were used as controls in the regression analyses examining drug problems.

Table 1

Means, Standard Deviations, and Correlations Among Variables (N = 356)

Variables	1	2	3	4	5	6	7
1. BPAQ-SF	-						
2. ALC	.21**	-					
3. DRG	.19**	.56**	-				
4. PIM	-.34**	-.27**	-.35**	-			
5. INC	.05	.05	.06	.12*	-		
6. Gender	-.04	-.08	.11*	-.03	-.05	-	
7. Race	.11*	-.08	-.17**	.02	.12*	-.03	-
<i>M</i>	24.40	57.57	67.36	47.51	50.08	-.46	-.04
<i>SD</i>	8.82	15.64	19.28	8.74	5.86	.89	1.00

Note. BPAQ = Buss Perry Aggression Questionnaire-Short Form Total, ALC = Alcohol Problems (PAI), DRG = Drug Problems (PAI), PIM = Positive Impression Management (PAI validity scale), INC = Inconsistency (PAI validity scale).

* $p < .05$ level (2-tailed). ** $p < .01$ level (2-tailed).

The first regression analysis examined the relationship between aggressive personality traits and alcohol problems and tested whether gender functioned as a moderator variable in that relationship. The combination of variables accounted for 9.5% of the variance in the Alcohol Problems score. The BPAQ-SF score ($\beta = .12$; $t = 2.278$) and the Positive Impression Management score ($\beta = -.23$; $t = -4.293$) were the statistically significant factors contributing to this variance. There was no support for gender being a moderator variable for this relationship. Higher scores on the aggressive trait measure and lower scores on the validity scale were related to more alcohol problems.

The second regression analysis examined the relationship between aggressive personality traits and drug problems and whether gender moderated that relationship. The variables accounted for 14.6% of the variance in the drug use score. The gender variable

($\beta = .10$; $t = 2.120$) contributed to the variance in this model, in addition to the validity scales Positive Impression Management ($\beta = -.33$; $t = -6.278$) and Inconsistency ($\beta = .10$; $t = 1.976$). Being male was related to more drug problems. However, the interaction of the BPAQ-SF and gender variables was not statistically significant, indicating no moderation. Table 2 presents the results for the analyses predicting alcohol and drug problems with gender as the moderating variable.

Table 2

Hierarchical Multiple Regression Analyses Predicting Alcohol and Drug Problems (N = 356) with Gender as a Moderator

Predictor	Alcohol Problems		Drug Problems	
	ΔR^2	β	ΔR^2	β
Step 1	.095**		.146**	
INC		---		.10*
PIM		-.23*		-.33**
BPAQ-SF		.12**		.07
Gender		-.08		.105*
Step 2	.00		.00	
BPAQ-SF x Gender		.00		.00
Total R^2	.095**		.146**	

Note. N = 356. PIM = Positive Impression Management; INC = Inconsistency; BPAQ-SF = Buss Perry Aggression Questionnaire – Short Form.

* $p < .05$. ** $p < .01$.

The third regression analysis examined the relationship between aggressive personality traits and alcohol problems and whether race functioned as a moderator variable. In the first step, aggressive personality traits and Positive Impression Management scores accounted for 9.6% of the variance in the Alcohol Problems score. Adding the interaction term of race and BPAQ-SF scores explained another 2.1% of

variance in the relationship ($\beta = -.14$; $t = 2.865$) and indicated a significant moderating effect. The moderating effect was examined through two additional regression analyses, one for White participants and one for African American participants. For the White participants, BPAQ-SF and Positive Impression Management scores explained 17.7% of variance ($p < .001$) in the scores on the Alcohol Problems subscale. BPAQ-SF scores did not predict alcohol scores for African American participants ($p = .096$). Thus, trait aggression is predictive of alcohol problems, but only for White offenders.

The fourth regression analysis examined the relationship between aggressive personality traits and drug use and whether race served as a moderator variable. Both validity scales and race were significant predictors of drug use problems in the first step. The interaction of the BPAQ-SF and race variables explained an additional 1.8% of the variance ($\beta = -.13$; $t = -2.748$), indicating a moderating effect. The moderating effect was examined through two additional regression analyses, one for White participants and one for African American participants. For White participants, BPAQ-SF scores and the validity scales explained 20.6% of variance ($p < .001$) in the drug use problems measure. Scores on the aggressive traits measure did not significantly predict drug use problems for African American participants ($p = .196$). The Positive Impression Management validity scale was the only significant predictor of scores on the drug problems scale for African American offenders. Table 3 displays the results for the regression analyses of alcohol and drug use problems with race as the moderating variable.

Table 3

Hierarchical Multiple Regression Analyses Predicting Alcohol and Drug Problems (N = 356) with Race as a Moderator

Predictor	Alcohol Problems		Drug Problems	
	ΔR^2	β	ΔR^2	β
Step 1	.10**		.17*	
INC		---		.11*
PIM		-.22**		-.33**
BPAQ-SF		.14*		.09
Race		-.09		-.18**
Step 2	.02		.02	
BPAQ-SF x Race		-.14*		-.13*
Total R^2	.12**		.19**	

Note. N = 356. PIM = Positive Impression Management; INC = Inconsistency; BPAQ-SF = Buss Perry Aggression Questionnaire – Short Form.

* $p < .05$. ** $p < .01$.

Chapter V: Discussion

There are over 209,000 offenders currently serving time in federal prisons, and the majority of these individuals are incarcerated for drug-related offenses. Many of these individuals evidenced aggressive behaviors in the commission of their crimes or while incarcerated. A number of personality characteristics, including aggressiveness, impulsivity, and difficulties controlling behaviors, have been found to foster substance use, abuse, and dependence. This study examined the relationship between aggressive personality traits and substance use and whether race or gender moderated that relationship in the hopes of informing treatment intervention programs in federal correctional institutions. Identifying an association between aggressive personality characteristics and substance use allows for treatment approaches that go beyond substance abuse and work to address effective coping with frustration and anger. Moderating effects might suggest different treatment approaches with different populations.

Based on previous research (Buss & Perry, 1992; Williams et al., 1996), gender was hypothesized to moderate the relationship between aggressive personality traits and alcohol use and drug use. This hypothesis was not supported. A variety of factors related to the influence of gender have been researched, including protective behavior strategies, impact of stress on use, age of first use, drinking practices, and prevalence of problems related to alcohol and drug use. The literature has also delineated differences in consumption and motivation to drink by gender. The majority of research has focused on males, instead of comparing males and females, due to the high prevalence rates of alcohol abuse and dependence in males (Kosten, George, & Kleber, 2005; Tarter, 2005;

Westermeyer, 2005). However, these results focused solely on community participants. It has been noted that incarcerated females have greater rates of substance abuse and dependence (Blume & Zilberman, 2005). Studies have found no differences between levels of aggression when comparing male and female offenders (Goldstein, Dovidio, Kalbeitzer, Weil, & Strachan, 2007; Nicholls, Brink, Greaves, Lussier, & Verdun-Jones, 2009). There are some findings suggesting that there is not a relationship between substance use and aggression in females (Sullivan, Cavanaugh, Ufner, Swan, & Snow, 2007), while other findings suggest there is not enough evidence to draw any conclusions at this time regarding female offenders (McKeown, 2010; Nicholls, Ogloff, Brink, Spidel, 2005; Woolard, 2004). Past studies (Bureau of Justice Statistics, 2009a; Kaplan, 1995) also collected and aggregated the data in ways that preclude comparisons between males and females. The current study suggests that aggressive personality traits are predictive of alcohol use problems, but that the female offenders in a federal correctional sample do not differ from their male counterparts when focusing on a link between aggressive personality traits and substance use variables.

In support of the hypotheses regarding race, a relationship was found between aggressive personality traits and alcohol and drug use, although this was only true for White participants. As discussed previously, there is a substantial literature base linking aggressive behaviors to alcohol and drug use. However, the relationship between aggressive personality traits and alcohol and drug use has not been thoroughly examined. Aggressive personality traits displayed early in life have been connected to substance use and aggressive behavior (Eftekhari et al., 2004; Fite et al., 2008; O'Donnell et al., 1995; Unger et al., 2003). Longitudinal studies (Caspi & Silva, 1995; Eron & Huesmann, 1990;

Huesmann et al., 1984; Olweus, 1979, 1991; Patterson, DeBaryshe, & Ransey, 1989; Patterson et al., 1991) demonstrate personality as a stable trait. Wang's (1998) findings that higher base rates for aggressive behaviors, substance use, and drug offenses were found in incarcerated individuals suggested that offenders would display different personalities and substance usage compared to a community sample.

In support of the hypothesis regarding alcohol use problems, an aggressive personality was related to alcohol use problems for White, but not African American, offenders. Along with many other situational factors causing problems, problems with alcohol use can stem from drinking greater amounts and a motivation to drink to "feel high." Past research studies (Bischof et al., 2005; Harrell & Karim, 2008) found these problems in males, but these studies did not examine the results by race. Previous research reported higher rates of substance use and higher rates of aggressive behaviors for White individuals (Gillespie, 2005). The current study suggests that the relationship between aggressive personality traits and alcohol use is also stronger for White individuals than for African Americans.

The findings from this study were contrary to the hypothesis that the relationship between aggressive personality and drug use would be stronger for African Americans. There are many factors that contribute to drug abuse. In studies focusing on risk factors for criminal behaviors, it was noted that African Americans have a greater level of neighborhood violence and problems, along with a greater tendency to buy, consume, and sell alcohol and drugs in a public venue leading to a greater number of arrests (Chauhan & Reppucci, 2009; Fite et al., 2009). Other individual factors that were associated with an increase in aggressive or criminal behavior include emotional instability, perceived peer

substance use, and conduct problems (Chauhan & Reppucci, 2009; Fite, Wynn, & Pardini, 2009). The majority of the literature base examining risk factors for later criminal activity has focused on individual factors present for African Americans; it stands to reason that these factors could be more strongly associated with substance use in the African American population than aggressive personality traits were.

The unexpected findings could potentially be explained by this study's focus on aggressive personality traits rather than aggressive behaviors. Many studies (Abbey, 1991; Bushman & Cooper, 1990; Gayford, 1975; Johnson, Gibson, & Linden, 1978; Klassen & Wilsnack, 1986; Myers, 1982; Spunt, Goldstein, Bellucci, & Miller, 1990; Welte & Abel, 1989) look at substance use and the resulting aggressive behaviors. Few studies have attempted to examine aggressive personality traits using the same operational definition as this study, so while aggressive behavior and drug use might be closely linked for African Americans, the same might not be true for aggressive personality characteristics and drug use.

In summary, there is a substantial literature base linking aggressive behaviors to alcohol and drug use. However, the relationship between aggressive personality traits and alcohol and drug use has not been thoroughly examined. Aggressive personality traits displayed early in life have been connected to substance use and aggressive behavior (Eftekhari et al., 2004; Fite et al., 2008; O'Donnell et al., 1995; Unger et al., 2003). Longitudinal studies (Caspi & Silva, 1995; Eron & Huesmann, 1990; Huesmann et al., 1984; Olweus, 1979, 1991; Patterson, 1989, 1991; Patterson et al., 1991) demonstrated personality as a stable trait. Wang's (1998) findings that higher base rates for aggressive behaviors, substance use, and drug offenses were found in incarcerated individuals

suggested that offenders would display different personalities and substance usage compared to a community sample. Consistent with the past studies, the current study supported the link between aggressive personality traits and alcohol and drug use problems although the association is conditional on race of participants.

Clinical Implications

There are many clinical implications possible as a result of this study. Most importantly, the Bureau of Prisons currently provides a number of treatment programs focused upon substance abuse, relapse prevention, and maintaining sobriety post-release. Psychoeducational groups are facilitated throughout the institutions on topics such as anger management and developing and utilizing positive coping skills. The current study focused on the offender characteristic of aggressive personality traits that could be important in the development of these programs. Differences by gender and race could inform treatment protocols (Langan & Pelissier, 2001b; Rounds-Bryant, Motivans, & Pelissier, 2003). Based upon these findings, it is recommended that psychoeducational programming outlining anger management and utilizing positive coping mechanisms that provide an appropriate outlet for aggressive traits should be included and that such a focus might be especially relevant for White offenders.

Another crucial part of psychology services in federal correctional institutions is to work with offenders that seek voluntary psychological treatment. Initial services for a new offender often focus on adjustment to incarceration. Predicting institutional adjustment would allow for more accurate choices of treatment (Walters, 2007). It has been estimated that approximately 10% of offenders will voluntarily seek psychological services upon entering prison (Diamond, Magaletta, Harzke, & Baxter, 2008; Youman,

Drapalski, Stuenig, Bagley, & Tangney, 2010). The findings of this study allow for a better understanding of federal offender characteristics. With this understanding, psychologists can better create programming while molding treatment plans to target the psychological needs of offenders.

Finally, understanding offender characteristics that are related to substance use informs the scant literature base. Without such information about offenders, it is difficult to make accurate predictions about these individuals and their future behaviors. There is also a substantial lack of information about female offenders in general. This information is important for forensic psychologists to predict criminal recidivism or complete accurate risk assessments for violence (Bonta, Law, & Hanson, 1998; Scott & Resnick, 2006; Singh & Fazel, 2010), which is often a necessary task to complete prior to releasing an offender that has been civilly committed to an institution. The current study suggests the importance of a more specific examination of aggressive personality traits and substance use behaviors during the assessment and prediction evaluations, while examining how this aggressive personality-substance use combination impacts possible future recidivism risks.

Limitations

The obvious limitation in this study is the reliance on self-report data, as all of the data were collected using self-report instruments. While measures were taken to include participants with valid data, there is no guarantee that the data were accurate representations of participants' characteristics and behaviors. Additionally, inmates are not the most reliable historians, even when recounting details of their own lives. These factors could have contributed to the slightly lower internal consistency found in this

study. There was also limited generalizability in these findings, as offenders recently incarcerated in federal prisons might not resemble those incarcerated many years ago or those serving time in a state correctional facility.

It is also important to consider how the data were collected and what participating may have meant for offenders. As federal offenders enter the system or are transferred between BOP institutions, several operational procedures are completed to insure each offender is stable in many areas, including mental health. For this project, offenders completed the operational procedures for the Psychology departments, which included intake forms like the PSIQ (used in this project). After completing intake forms and a possible interview, offenders were given the opportunity to participate in the research project by completing several assessments.

Based upon the literature stating secondary gain is a prime motivator for offenders (Allen & Bosta, 1981; Dignam, 2003), it stands to reason that these research findings should be interpreted with this understanding in mind. While there were no incentives offered after the completion of instruments, it is possible there were unforeseen secondary gains. Perhaps some offenders believed participating would improve how they were viewed in the system and even lead to more privileges or reduced sentences. Positive Impression Management was used as a control for the regression analyses due to the influence found in the initial exploratory analyses. This suggests that participants were attempting to portray themselves in a more favorable way.

While there are limitations to this research project, there are clinical implications that encourage continued research with a federal offender population. Because there are many offenders incarcerated for drug offenses and the prevalence of aggression behaviors

is high in corrections, it is important to study the specific characteristics of this population rather than rely on research solely based on community participants. The lack of a strong literature base surrounding these variables suggests continued research is needed with this population, both for better understanding of characteristics of this population and to ascertain need and ways to intervene successfully with the offender population.

Future Research

This research project was a first effort to explore characteristics of offenders and to potentially target substance abuse interventions. Future research could target specific personality or mental health diagnoses in relation to aggressive personality traits and substance abuse. Research has shown many dual diagnoses are present for offenders, including substance abuse/dependence with mood disorders, schizophrenia, antisocial personality disorder, and borderline personality disorder (Nace, 2005). Perhaps the presence of mood or personality disorder intensifies the association between aggressive personality traits and substance use. When an individual is dually diagnosed, treatment considerations must be made prior to treatment to determine if the diagnoses should be treated separately or concurrently.

To increase generalizability and allow for comparisons across groups, future research could examine personality and environmental characteristics of federal offenders and those individuals enrolled in substance use rehabilitation programs in private facilities that have not yet experienced legal problems as a result of their substance use. Examining different groups would allow investigation of individual and group characteristics that could potentially aid in developing and implementing treatment

programs. Additionally, similar comparisons could be completed for offenders in federal and state corrections facilities, community rehabilitation facilities, and a control group of community members.

There is limited information regarding the relationship between aggressive personality traits and alcohol and drug use in federal offenders, especially in regards to the differences that might appear in these relationships for males and females and Whites and African Americans. This study suggests that there is a link between aggressive personality traits and alcohol and drug use, and that the relationship holds for both White male and female offenders, but not for African American offenders.

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