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Is My Personality Your Problem?: Examining the Effect of Personality on Drug Use and Criminal Involvement

Wanda E. (Wanda Edelis) Leal



FLORIDA STATE UNIVERSITY
COLLEGE OF CRIMINOLOGY AND CRIMINAL JUSTICE

IS MY PERSONALITY YOUR PROBLEM?: EXAMINING THE EFFECT
OF PERSONALITY ON DRUG USE AND CRIMINAL INVOLVEMENT

By
WANDA E. LEAL

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Wanda E. Leal defended this dissertation on April 6, 2017.

The members of the supervisory committee were:

Marc G. Gertz
Professor Directing Dissertation

Maxine D. Jones
University Representative

Kevin M. Beaver
Committee Member

Carter H. Hay
Committee Member

The Graduate School has verified and approved the above-named committee members, and certifies that the dissertation has been approved in accordance with university requirements.

For Eddy, Wanda, and Jake

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ABSTRACT

In the early 1900s researchers began to examine various dimensions of the human personality. Throughout the years this research has solidified the notion that there are several master traits that every individual possess to some degree or another that can adequately account for most of the between person variation in personality. One of the most well-known models is the five-factor model of personality. This model divides the personality of an individual into five master traits: extraversion, neuroticism, conscientiousness, agreeableness, and openness to experience. The five-factor model has garnered a plethora of empirical support and has been found to be stable over the life course, manifest across cultures, and apply to all demographics of people. Research has also demonstrated that certain behaviors, such as drug use and criminal involvement, vary by where someone falls on the personality spectrum for each trait. While this type of research is not new, it is rarely done in the field of criminology. As such, this dissertation seeks to address this gap in criminological knowledge by exploring whether drug use outcomes and criminal outcomes vary by across personality traits. Specifically, it will examine whether 12 drug use measures and 13 criminal involvement measures are affected by personality traits. The focus of this dissertation will be to highlight the personality differences that emerge for different types of drug use and criminal involvement. This is important because prior research has emphasized that relationships exists rather than comparing relationships between personality traits and different measures of drug use or crime (i.e. neuroticism affects marijuana use, but not alcohol use). Additionally, this dissertation examines the effects of personality traits measured as both a continuous variable and a series of quartiles to determine whether the effects of personality on drug use and criminal involvement vary by level of personality traits. The findings suggest that the effects of personality on drug use and criminal outcomes do vary by the type of

drug or crime measured. There were also significant differences between analyses that examined personality as a continuous variable and the quartile analyses. This dissertation also discusses implications for criminological theories, policy, and future research.

CHAPTER 1

INTRODUCTION

“There is an optical illusion about every person we meet. In truth, they are all creatures of given temperament, which will appear in a given character, whose boundaries they will never pass: but we look at them, they seem alive, and we presume there is impulse in them. In the moment it seems impulse; in the year, in the lifetime, it turns out to be a certain uniform tune, which the revolving barrel of the music-box must play. Men resist the conclusion in the morning, but adopt it as the evening wears on, that temper prevails over everything of time, place, and condition, and is inconsumable in the flames of religion.”

-Ralph Waldo Emerson (1844)

Researchers have been studying personality since the early 1900s. Throughout this time they have discovered a set of cohesive traits that all individuals possess to some degree, known as the five-factor model (Tupes & Christal, 1961; McCrae & John, 1992). This model divides the personality of an individual into five master traits: neuroticism, conscientiousness, extraversion, agreeableness, and openness to experience. These traits have been found to be stable across the life-course, apply to all demographics of people, and manifest across cultures (McCrae & Costa, 1994; McCrae & Allik, 2002). As a whole, personality research finds that the five-factor model appears to predict a wide range of individual outcomes, including ones of interest to criminologists such as crime and substance use (Chassin, Flora, & King, 2004; Terracciano & Costa, 2004; Kornør & Nordvik, 2007). Specifically, high levels of neuroticism have been found to increase drug use and criminal involvement, while lower levels of agreeableness and conscientiousness increase these variables (Ottomanelli, 1994; Heaven, 1996; Miller, Lynam & Leukefeld, 2003; Chassin, Flora, & King, 2004; Terracciano & Costa, 2004; Barlas & Egan,

2006; Kornør & Nordvik, 2007; Egan, 2009; Egan & Campbell, 2009; Jones, Miller, & Lynam, 2011; Van Gelder & De Vries, 2012; Muris, Meesters, & Timmermans, 2013; Cauchi & DeGiovanni, 2015; Collette, Pakzad, & Bergheul, 2015; Novais, Pombo, & Ismail, 2016).

Extraversion and openness to experience have inconsistent results that tend to vary by the type of drug or crime studied (Zuckerman, 1994; Dennison, Stough & Birgden, 2001; Walton & Roberts, 2004; Egan, Kavanagh, & Blair, 2005; Homayouni, 2011; Thiry, 2012; Jolliffe, 2013; O’Riordan & O’Connell, 2014)

Although personality research has been around for over 100 years, it is fairly new to the field of criminology. This may be due to what Miller and Lynam (2001) refer to as “a long-standing mistrust by criminologists of personality” (pg 765). They credit this “mistrust” to the methodological shortcomings of the earliest criminological research on personality. These shortcomings include poorly defined personality constructs, issues with the validity of personality tests, and concerns of predictor-criterion overlap in scale construction (Miller & Lynam, 2001). As the field of criminology has progressed and studies have become more methodologically sound, it is becoming more accepting of personality research and how this research could be useful. Unfortunately, because of the original halt in personality research, criminology has not fully developed or integrated personality research into the field.

While there is quite a bit of research in other disciplines focusing on the link between personality and drug use or criminal outcomes, these studies tend to have serious flaws. The current literature on the effects of personality on criminal or substance related outcomes has three major limitations. First, the measures of substance use and criminal involvement used by previous research have not been specific enough. The majority of the research studying the effects of personality does not investigate specific outcomes, such as the use of a certain type of

drug or the commission of a particular type of crime, rather they investigate general substance use and crime outcomes that cannot lead to specific policy implications (Andrews & Slade, 2002; Chassin, Flora, & King, 2004; Walton & Roberts, 2004; Thiry, 2012; Van Gelder & De Vries, 2012; Jolliffe, 2013; Collette, Pakzad, & Bergheul, 2015). This limitation also makes it difficult to focus on the personality differences that emerge. For example, a certain personality trait may increase the odds of one type of crime, but not another. Second, studies rarely split personality variables into quartiles, which would provide more information on how these traits impact drug use and crime (Ottomanelli, 1994). It would be valuable to know if a personality trait only had an effect at the highest or lowest level. Third, few studies discuss the differences that emerge between personality factors when predicting substance use or criminal outcomes. Additionally, studies rarely attempt to integrate criminological theory with personality research.

This dissertation aims to fill these major gaps in the literature by including a large variety of substance use and crime related outcomes, showing results for each personality quartile, and emphasizing personality differences when discussing the results. The five traits from the five-factor model of personality will be discussed including: neuroticism, extraversion, agreeableness, conscientiousness, and openness to experience. The impact of these personality factors is tested against four measures of past year drug use (alcohol, binge drinking, marijuana, and favorite drug), four measures of past thirty day drug use (cigarettes, alcohol, marijuana, and favorite drug), four measures of drug dependence (nicotine dependence, alcohol dependence, marijuana dependence, and favorite drug dependence), two general crime measures (arrest and incarceration), three measures of violent crime (robbery, fighting, serious fighting), five measures of property crime (burglary, theft over fifty dollars, theft under fifty dollars, credit card fraud, and check fraud), and three measures of public order crime (vandalism, drug sale, and

dealing in stolen property). Results are presented for the four quartiles and the full continuous personality variables.

1.1 Why is this Research Important?

This type of research is of importance to criminologists because of the connection between drugs and crime. Studies consistently show that there is an association between drug use and criminal involvement (Mott & Taylor, 1974; Burr, 1987; Parker, Newcombe, & Bakx, 1987; Hammersley, Forsyth, & Lavelle, 1990; Altschuler & Brounstein, 1991; Grapendaal, 1992; Matthews & Trickey, 1996; Seddon, 2000; Chaiken & Chaiken, 1990; Faupel & Klockars, 1987; Inciardi, 1979; Hammersley, Forsyth, Morrison, & Davies, 1989; Ball, 1991; Dawkins, 1997; Maher, Dixon, Hall, & Lynskey, 2002; Manzoni, Brochu, Fischer & Rehem, 2006; Inciardi, 1990; Goldstein, Bellucci, Spunt, & Miller, 1991; Inciardi & Pottieger, 1994; Kang, Magura, & Shapiro, 1994; McCoy, 1995; Watts & Wright, 1990; Pedersen & Skardhamar, 2009; Green, Doherty, Stuart, & Ensminger, 2010). Several studies have suggested that this association means that drug use leads to crime (Parker, Newcombe, & Bakx, 1987; Bennett, 1998), while other studies have discovered the reverse causal order with criminal involvement leading to drug use (Mott & Taylor, 1974; Burr, 1987; Chaiken & Chaiken, 1990; Hammersley, Forsyth, & Lavelle, 1990; Altschuler & Brounstein, 1991; Grapendaal, 1992; Matthews & Trickey, 1996). A more promising line of research, suggests that drugs and crime are not causally related, but are both caused by a third variable (Chaiken & Chaiken, 1990; Faupel & Klockars, 1987; Parker, Newcombe, & Bakx, 1987; Burr, 1987). According to this line of research, drug use and criminal involvement develop independently, but become intertwined and intensify as they both progress. Additionally, as an individual progresses through the stages of addiction, the relationship

between drugs and crime changes (Faupel & Klockars, 1987; Parker, Newcombe, & Bakx, 1987).

If there is a third factor that causes both drug use and criminal involvement, it is important to identify this factor. With knowledge on this factor it may be possible to lessen the relationship between drugs and crime. Several environmental factors have been identified as potential third variables including, destructive factors in the environment, lack of social controls, or poor school behavior (Chaiken & Chaiken, 1990). It is possible that personality traits could be this third factor and cause both drug use and criminal outcomes. This dissertation examines whether personality traits are related to both drug use and crime. If the personality characteristics studied in this dissertation are associated with both, there could be treatment implications that might help reduce the relationship between drugs and crime.

1.1.1 Implications for Treatment

Research that examines how personality is connected to substance use and criminal involvement has important implications for treatment and rehabilitation. Essentially, personality research could help guide clinicians throughout the treatment process by pointing to specific areas they should target. This would create a unique treatment experience for each individual that is tailored to his or her personality.

Creating more individualized treatment plans based on personality traits could help reduce drug relapse because studies show that rates of relapse vary by personality (Ottomanelli, 1994; Serafini, Toohey, Kiluk & Carroll, 2016). Ottomanelli (1994) discovered that substance abusers had higher levels of neuroticism and lower levels of conscientiousness than individuals who did not use drugs. However, only individuals who were in the 90th percentile (or above) for neuroticism and in the 17th percentile (or below) for conscientiousness relapsed (Ottomanelli,

1994). With this type of information treatment professionals would be better able to set their patients up with the highest chances of success in terms of avoiding relapses.

These individualized treatment plans that take personality into account could also help treatment professionals discover why their patient decided to use drugs, which would help them decide how to proceed with treatment. Several studies have shown that substance use serves different purposes depending on the personality traits of the individual (McCormick, Dowd, Quirk, & Zegarra, 1998; Comeau, Stewart, & Loba, 2001; Kuntsche, Von Fischer, & Gmel, 2008). For example, extraversion has been linked to drinking for enhancement motives (Kuntsche, Von Fischer, & Gmel, 2008), conscientiousness has been found to be positively related to using substances for problem solving purposes and negatively related to drinking for enhancement motives, drinking to cope, and using substances for escape avoidance (McCormick et al., 1998; Kuntsche, Von Fischer, & Gmel, 2008), neuroticism is associated with drinking to cope and for the purposes of escape avoidance (McCormick et al., 1998; Kuntsche, Von Fischer, & Gmel, 2008), and agreeableness is negatively related to confrontive coping (McCormick et al., 1998). Individuals with high levels of conscientiousness, neuroticism, extraversion, and agreeableness are more likely to have social rejection, negative emotional states, and tension as use triggers (McCormick et al., 1998). Additionally, those with high extraversion, agreeableness, and conscientiousness had more confidence in their ability to stop using drugs, while individuals with high neuroticism were not confident in their ability to restrain themselves from using (McCormick et al., 1998).

Treatment that considers the personality of individuals has been found to be successful for reducing substance related outcomes. For example, neuroticism has been shown to decrease

after treatment, which helps prevent relapses (Borman, Zilberman, Tavares, Surís, El-Guebaly, & Foster, 2006).

Preliminary evidence shows that personality is an important factor to consider when determining how to create treatment programs for both substance use and criminal involvement. The current personality literature can already help treatment professionals with an individual's rate of relapse and what motives are driving them to use drugs (Ottomanelli, 1994; McCormick et al., 1998; Comeau, Stewart, & Loba, 2001; Kuntsche, Von Fischer, & Gmel, 2008; Serafini et al., 2016). With more research on how personality impacts substance use, treatment professionals might be significantly more successful at treating their patients. Additionally, knowing that personality specific treatment can help reduce negative substance related outcomes, it is possible that we could apply this knowledge towards reducing criminal outcomes. One possibility could be to create personality focused prison programs aimed at reducing recidivism. If certain personality traits make specific crimes more likely, then gearing treatment towards that personality trait may reduce recidivism.

1.2 Outline

The remaining chapters proceed as follows. Chapter 2 describes the five-factor model and gives the history of this model. Chapter 3 discusses the current state of the literature in terms of how the five-factor model affects substance use and criminal outcomes. Chapter 4 discusses how criminological theories can explain the relationship between personality factors and outcomes such as drug use and crime. Additionally, this chapter describes the limitations in the current literature, how this dissertation helps to fill these gaps, and specifies the research questions being studied. Chapter 5 outlines the methods used to execute this study including the data, variables, and analysis plan. Chapter 6 presents the results of this dissertation. Specifically, chapter 6

discusses the results of analyses looking at the effects personality on drug use and examines the effects of personality on criminal involvement. Finally, chapter 7 summarizes the findings of this study, and addresses the policy implications brought about by the results. The limitations of this study and directions for future research are also discussed.

CHAPTER 2

WHAT IS THE FIVE-FACTOR MODEL AND HOW DID IT DEVELOP?

2.1 What is the Five-Factor Model?

The measurement of personality has been studied and debated over many decades. Throughout this time, a myriad of different concepts and theories have been offered. While many studies were conducted in this field, all the differing explanations lead to confusion rather than understanding. This changed when researchers found the same five personality factors consistently emerging from many different samples (Tupes & Christal, 1961; McCrae & John, 1992). After decades more research on these factors, which demonstrated their comprehensiveness and applicability across different samples and cultures, researchers now generally agree that these five factors are master traits that all individuals possess to some degree and can be scored on. This research has come to be known as the five-factor model of personality, and the five factors are: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience (Tupes & Christal, 1961; McCrae & John, 1992).

While the reliability and validity of these five factors has been established, there is still some debate as to how we should delineate a few of these factors (McCrae & Costa, 1987; McCrae & John, 1992). In general there is agreement on how to define each, but there does appear to be some disagreement amongst certain aspects of each factor. Most of these debates revolve around whether specific traits should be seen as facets of each factor, and if so should they be central or more peripheral. This section will describe each factor and summarize the existing definitional debates.

2.1.1 Neuroticism

The personality factor that has the least amount of definitional disagreement is neuroticism. Neuroticism can be seen as the opposite end of the spectrum from emotional

stability, and is defined as constant worrying, self-consciousness, insecurity, and issues with temperament (McCrae & Costa, 1987). Most researchers agree that negative affect is a central component of neuroticism, but some question whether there are other important elements. For example, research has suggested that impulsive behaviors such as substance use and overeating may be an aspect of neuroticism (Costa & McCrae, 1980). Other research has suggested associations between neuroticism and negative coping skills and irrational beliefs (Teasdale & Rachman, 1983; Vestre, 1984). The debate over neuroticism seems to lie with the question of whether these impulsive behaviors and irrational thoughts should be seen as aspects of neuroticism itself, or symptoms brought about by a high degree of negative affect.

2.1.2 Agreeableness

The personality factor agreeableness, like neuroticism, appears to have more agreement than disagreement on how to define it. Agreeableness can be defined as appreciative, generous, forgiving, sympathetic, and kind (McCrae & John, 1992). Antagonism is generally seen as the extreme low end of agreeableness. Individuals with low agreeableness tend to be stubborn, rude, callous, and mistrustful (McCrae & Costa, 1987). The main area of debate within agreeableness is related to the values and labels associated with this personality factor. In surveys, when asking about this factor, evaluative judgments about individuals are typically made, which do not accurately capture the agreeableness factor (McCrae & Costa, 1987). For example, an agreeable individual is often seen as more enjoyable, pleasant, and better than an antagonistic individual. Because of the negative labels attached to low agreeableness, studies often do not include this personality factor in their models. It is important to keep in mind that high agreeableness often results in dependency and submissiveness, which could be just as maladaptive as low agreeableness (McCrae & Costa, 1987).

2.1.3 Extraversion

Extraversion is the personality factor that individuals are the most likely to be familiar with. Sociability seems to be the most central facet and can be described with adjectives such as talkative, friendly, affectionate, and fun loving (McCrae & Costa, 1987). The questions that remain with this personality factor revolve around which aspects of extraversion should be more central and which should be auxiliary. For example, one personality researcher believed that extraversion should be split into two factors, one defined by sociability and the other defined by assertiveness (Hogan, 1983). Similarly, other researchers have found that extraversion can be seen as a mix of dominance and activity (Goldberg, 1980). Traits such as assertiveness and dominance on the surface might not seem to fit with extraversion, but when thinking of examples of extraverted individuals, such as car salesmen it becomes more clear (McCrae & Costa, 1987). These individuals are incredibly sociable, talkative, and friendly, but they are not necessarily likeable because of their assertiveness. While the role of characteristics such as dominance and assertiveness within the personality factor of extraversion are still debated, it is clear that sociability is the key component of this factor.

2.1.4 Conscientiousness

The trait of conscientiousness is defined by adjectives such as organized, thorough, and efficient, while the opposite end of the conscientiousness spectrum can be seen as undirected (McCrae & John, 1992). However, researchers often debate on whether it means careful and thorough or governed by conscience (Morris, 1976). Some researchers view conscientiousness as a form of impulse control (Cattell, Eber, & Tatsuoka, 1970; Conley, 1985). Other researchers see this personality factor in a more behavioral light, and define it in terms of an individual's will to achieve and accomplish tasks (Digman & Takemoto-Chock, 1981). With this type of behavioral

definition, an individual low in conscientiousness may be seen as lazy and un-disciplined. It appears that the various interpretations of conscientiousness are related, although not identical. While it is possible that an individual low in conscientiousness could be unscrupulous, it is also possible that an individual could be lazy and undirected, but adhere to a very strict moral compass (McCrae & Costa, 1987).

2.1.5 Openness to Experience

Openness to experience can be defined as imaginative, daring, and having interests in a wide array of topics and activities (McCrae & Costa, 1987). The openness factor was reinterpreted from previous personality research where it was referred to as culture (Norman, 1963; McCrae & Costa, 1985b). The biggest debate within this personality factor today is how to distinguish between openness and intelligence. Significant correlations have been found between intelligence and openness, and peer studies demonstrate that open individuals tend to be viewed as more intelligent (McCrae & Costa, 1987). While this suggests that intelligence could be a component of openness, factor analysis studies show that intelligence and openness are two separate factors, although there is some overlap (McCrae & Costa, 1985a).

2.2 History of the Five-Factor Model

Personality researchers have been trying to establish a cohesive model of personality since the early 1900s (Digman, 1990). Now most researchers agree that the five-factor model of personality is the integrated model they were searching for. Before delving into the research on the five-factor model, it is important to discuss how this model developed. This section will explain how researchers discovered the five-factor model of personality.

When personality research began, there were two different approaches that built on each other somewhat, and together they led to the conception of the five-factor model we know today.

The first is called the lexical approach, and it focused on studying the natural language in order to find terms that represent individual traits (McCrae & John, 1992). The second approach involves the creation of personality questionnaires to measure personality scales (McCrae & John, 1992). Research from both approaches consistently supports the idea that there are five broad personality dimensions.

2.2.1 The Lexical Approach

As mentioned above, the lexical approach studied language to find important individual traits. The hypothesis was that all individual differences amongst people would be noted and embedded into any given natural language as trait terms. Therefore, if researchers could study the language and decode the terms, they could learn basic facets of personality (Klages, 1926; McCrae & John, 1992). This type of research began with Francis Galton (1884) who was the first researcher to examine the dictionary and accumulate a list of about 1,000 personality trait terms (John, Angleitner, & Ostendorf, 1988). Not long after, Klages (1926) expressed the hypothesis of the lexical school of thought and wrote about the need to study language to gain a better understanding of personality. This sparked Baumgarten's (1937) interest and she began studying personality terms found in the German language. She ended up with a list of 941 trait-descriptive adjectives and 688 nouns (John, Angleitner, & Ostendorf, 1988). While Baumgarten's work itself did not influence the evolution of personality research, her work did inspire Allport and Odbert (1936) to begin their own research on personality traits found in the English language (Digman, 1990).

Allport and Odbert (1936) looked through Webster's New International Dictionary (1934) in search of terms that could distinguish the behavior of one individual from another. In the end, they had a list of about 18,000 words, which they divided into four categories. Category

one included “neutral terms designated possible personal traits”, category two included “terms primarily descriptive of temporary moods or activities”, category three included “ weighted terms conveying social and character judgments of personal conduct or designated to influence others”, and category four included “metaphorical and doubtful terms” (Allport & Odbert, 1936; John, Angleitner, & Ostendorf, 1988).

Several years later Cattell (1943) used the list created by Allport and Odbert (1936) with the aims of discovering major personality dimensions (John, Angleitner, & Ostendorf, 1988). He created synonym clusters that often included opposing words in order to create a personality spectrum of sorts. Throughout his work, Cattell eliminated more than half of the words listed by Allport and Odbert (1936), and ended with about 30 to 40 clusters (Cattell, 1945; John, Angleitner, & Ostendorf, 1988). He conducted a factor analysis on these factors, and he found 12 major personality factors (Cattell, 1945). It should be mentioned that further examination of his work shows that only the first five of his factors were actually interpretable (John, Angleitner, & Ostendorf, 1988).

The work of Cattell stimulated the interest of other personality researchers. For example, Fiske (1949) used 22 of Cattell’s variables and found five recurrent factors (John, Angleitner, & Ostendorf, 1988). Additionally, Tupes and Christal (1961) analyzed eight different samples and consistently found that there were five strong and recurrent factors, but nothing more. They named their factors: surgency, agreeableness, dependability, emotional stability, and culture (John, Angleitner, & Ostendorf, 1988). Researchers such as Norman (1963), Borgotta (1964), Smith (1967), Goldberg (1981, 1982), and Digman and Takemoto-Chock (1981) replicated the works of Fiske (1949) and Tupes and Christal (1961) and they all found evidence for only five factors, although the interpretations of the factors differed across study.

2.2.2 Personality Questionnaires

While the lexical approach got the field of personality research started and aimed towards the idea of five major factors, the majority of substantive research in the area comes from personality questionnaires. This field of study created questionnaires with scales designed to more practically measure concepts derived from personality theories (McCrae & John, 1992). Theories of personality such as those created by Jung (1923, 1971), Murray (1938), and Sullivan (1953) have played a crucial role in the development of questionnaire instruments. Additionally, other researchers have developed hundreds of scales to measure other aspects of personality (McCrae & John, 1992).

Although early theories of personality were quite different, the various personality questionnaires measured very similar concepts. The majority of questionnaires measure some sort of negative emotionality because this factor resembles many psychiatric disorders, which are often of interest to researchers (McCrae & John, 1992). For example, Eysenck and Eysenck (1964, 1975) developed their conceptions of neuroticism and extraversion from these questionnaire studies. Further research on these factors eventually convinced other personality researchers that they were central facets of personality and that measures for them could be found on most personality questionnaires (McCrae & John, 1992).

At this point, neuroticism and extraversion had been accepted by the research community; however, it was apparent that these two factors alone could not cover the entire range of personality characteristics. Accordingly, Tellegen and Atkinson (1974) suggested that there was a third personality factor that was independent of, but related to neuroticism and extraversion. The factor they suggested was termed “openness to absorbing and self-alerting experience” (Tellegen & Atkinson, 1974; McCrae & John, 1992). Around the same time, Costa

and McCrae (1976) also proposed a third factor referred to as “openness to experience,” which was quite similar to that of Tellegen and Atkinson (1974). A few years later, Costa and McCrae (1980) recommended a personality dimension of self-control, while Tellegen (1982) suggested a dimension of constraint. These propositions eventually turned into the personality factor we know today as conscientiousness. It was around this time that the ideas from the lexical approach merged with the personality questionnaire approach and became the five-factor model (McCrae & John, 1992).

CHAPTER 3

HOW IS THE FIVE-FACTOR MODEL RELATED TO SUBSTANCE USE AND CRIMINAL INVOLVEMENT?

3.1 The Five-Factor Model and Substance Use

Throughout the years there has been substantial amounts of research on the association between the personality factors in the five-factor model and substance use. In general, this research finds that increased neuroticism, and decreased agreeableness and conscientiousness are associated with increased levels of substance use (Ottomanelli, 1994; Chassin, Flora, & King, 2004; Terracciano & Costa, 2004; Kornør & Nordvik, 2007; Malouff, Thorsteinsson, Rooke, & Schutte, 2007; Terracciano, Löckenhoff, Crum, Bienvendu, & Costa, 2008; Turiano et al., 2012; Cauchi & DeGiovanni, 2015; Mercado, Rogers, Rodriguez, Villarreal, Terracciano, & Nguyen-Finn, 2016; Novais, Pombo, & Ismail, 2016). These studies also reveal inconsistent results for extraversion and openness to experience that vary by the type of drug studied (Walton & Roberts, 2004; Dubey, Arora, Gupta, & Kumar, 2010; Homayouni, 2011; Mercado et al., 2016).

This section will discuss the current state of the literature on how neuroticism, agreeableness, conscientiousness, extraversion, and openness to experience affect substance use. It will examine the relationship between these five personality factors and four categories of drug use: substance abuse/dependence, alcohol, cigarettes, and marijuana. There are many gaps in this literature, which will be discussed in depth in a later section.

3.1.1 Substance Abuse and Substance Dependence

Studies that examine the association between the five-factor model and substance abuse and/or substance dependence use a general measure of drug use. With these studies, abuse or dependence to a substance is measured through survey questions, and if the criteria is met then the individual is considered a drug user for the study. The majority of studies use the Diagnostic

and Statistical Manual of Mental Disorders (DSM) criteria for substance abuse and/or substance dependence. Generally, these studies ask individuals whether they meet the criteria for abuse/dependence for any drug. This means that some of the individuals in any given study could meet the abuse criteria for marijuana, while others met the abuse criteria for heroin.

These studies consistently link three of the five-factor model personality traits to substance abuse and/or substance dependence. Specifically, higher levels of neuroticism are associated with increases in substance abuse and/or substance dependence, while lower levels of agreeableness and conscientiousness are linked with increases in substance abuse and/or substance dependence (Ottomanelli, 1994; Andrews & Slade, 2002; Chassin, Flora, & King, 2004; Walton & Roberts, 2004; Anderson, Tapert, Moadab, Crowley, & Brown, 2007; Hopwood, Morey, Skodol, Stout, Yen, Ansell, Grilo, & McGlashan, 2007; Dubey et al., 2010; Homayouni, 2011; Turiano et al., 2012; Lackner, Unterrainer, & Neubauer, 2013). For example, Ottomanelli (1994) found that the mean neuroticism score of substance abusers was one standard deviation higher than the non-substance abusing sample, and substance abusers were in the 17th percentile of conscientiousness (Ottomanelli, 1994). Similarly, Walton and Roberts (2004) found that heavy drug users scored lower on agreeableness and conscientiousness than moderate users or abstainers (Walton & Roberts, 2004).

On the other hand, there are mixed results for extraversion and openness to experience. Some studies found positive associations between substance abuse and/or substance dependence and extraversion and openness (Chassin, Flora, & King, 2004; Reno, 2004; Walton & Roberts, 2004; Dubey et al., 2010; Homayouni, 2011; Turiano et al., 2012), other studies found negative associations (Rosenthal, Edwards, Ackerman, Knott, & Rosenthal, 1990; Roy, 2003; Luo, Kranzler, Zuo, Wang, Gelernter, 2007; Dubey et al., 2010; Homayouni, 2011; Lackner,

Unterrainer, & Neubauer, 2013), and still others found null results (Ottomanelli, 1994; Borman et al., 2006). For example, Chassin and colleagues (2004) found that higher levels of openness increased an individual's odds of being in the heavy drug using group or experimental using group compared to the abstainer group (Chassin, Flora, & King, 2004). Conversely, another study determined that lower levels of openness were associated with polydrug abuse (Lackner, Unterrainer, & Neubauer, 2013). Similar patterns were observed with extraversion, with Rosenthal and associates (1990) discovering that substance users had lower levels of extraversion than non-users, and that polydrug users had the highest levels of extraversion (Rosenthal et al., 1990). In contrast, using a sample from India, Dubey and colleagues (2010) suggested that the substance abusing group had higher extraversion scores than the non-abusing group (Dubey et al., 2010).

3.1.2 Alcohol

Studies examining the effect of the five-factor model on alcohol use make up the largest part of the personality and substance use literature. While the goal of these studies is the same, the measures of alcohol consumption are often different. The most common measures involve asking individuals the quantity and/or frequency of their alcohol consumption in a given period of time or whether they meet the criteria for alcohol abuse or dependence. Other studies use a sample of individuals from an alcohol treatment facility.

Unlike research measuring substance abuse and/or dependence, studies measuring alcohol use did not have inconsistent results for any of the five-factor personality traits. These studies found that higher levels of neuroticism, extraversion, and openness to experience, and lower levels of agreeableness and conscientiousness are associated with increased level of alcohol use (Hill, Zubin, & Steinhauer, 1990; Ottomanelli, 1994; Schuckit, Klein, Twitchell, &

Smith, 1994; Martsh & Miller, 1997; Cook, Young, Taylor, & Bedford, 1998; Grau & Ortet, 1999; Drummond & Phillips, 2002; King, Bernardy, & Hauner, 2003; Ruiz, Pincus, & Dickinson, 2003; Walton & Roberts, 2004; Malouff et al., 2007; Turiano et al., 2012; Cheng, & Furnham, 2013; Cauchi & DeGiovanni, 2015; Mercado et al., 2016; Novais, Pombo, & Ismail, 2016). The only inconsistencies within this literature are a few null results for extraversion and neuroticism (Grau & Ortet, 1999; Drummond & Phillips, 2002; King, Bernardy, & Hauner, 2003).

Within the alcohol and personality literature, neuroticism, extraversion, and conscientiousness have been studied the most, thus the consistent significant findings appear reliable. Increased levels of neuroticism have been shown to positively predict the amount of alcoholic drinks an individual consumes, how much alcohol an individual consumes, and whether an individual has problems with alcoholism (Drummond & Phillips, 2002; Ruiz, Pincus, & Dickinson, 2003; Turiano et al., 2012). Additionally, studies also suggest that children of alcoholics have higher levels of neuroticism than children of non-alcoholics (Beaudoin, Murray, Bond, & Barnes, 1997; Larkins & Sher, 2006). Similarly, extraversion has been found to have a positive relationship with alcohol consumption, with one study suggesting that each standard deviation increase in extraversion predicted a 40 percent higher likelihood of alcohol dependence (Mercado et al., 2016). Extraversion has also been positively linked to binge drinking, with the heaviest levels of drinking being found among extraverted males (Martsh & Miller, 1997). Unlike extraversion and neuroticism, conscientiousness has been found to have a negative relationship with alcohol use, with heavy users having much lower levels of conscientiousness than abstainers or moderate users (Walton & Roberts, 2004).

While studies on the relationship between openness and alcohol use all show a positive relationship, this evidence is not as reliable as those for the other personality traits because there has been the least amount of research on openness (Turiano et al., 2012; Novais, Pombo, & Ismail, 2016; Mercado et al., 2016). Similarly, agreeableness does not have as much empirical backing to support the negative association found with alcohol consumption (Ruiz, Pincus, & Dickinson, 2003; Walton & Roberts, 2004; Malouff et al., 2007; Turiano et al., 2012; Cheng, & Furnham, 2013).

3.1.3 Cigarettes

Currently, there is little research on the relationship between the five-factor model and cigarette smoking. The studies that do exist usually measure the number of cigarettes an individual smokes, or compares groups of never, former, and current smokers. These studies find that higher levels of neuroticism, extraversion, and openness are associated with higher levels of cigarette smoking, while lower levels of agreeableness and conscientiousness are related to more cigarette smoking (Terracciano & Costa, 2004; Malouff, Thorsteinsson, & Schutte, 2006; Terracciano et al., 2008; McCann, 2010; Turiano et al., 2012; Mercado et al., 2016).

The majority of research in this area focuses on neuroticism, agreeableness and conscientiousness. One study found that lower levels of conscientiousness and agreeableness were associated with a 45 percent and 30 percent higher risk of being a cigarette smoker. (Mercado et al., 2016). Of the studies on cigarette smoking and the five-factor model, two found a relationship with openness (McCann, 2010; Turiano et al., 2012) and only one suggested a relationship with extraversion (Malouff, Thorsteinsson, & Schutte, 2006). Although there is little research on openness, it appears that it may play a key role in cigarette use because McCann (2010) found that openness was the only personality factor that accounted for differences in

cigarette smoking prevalence after relevant factors were controlled for (McCann, 2010). From the state of the current literature, it is clear that more research needs to be done in the area of cigarette use and personality factors, especially studies that include openness and extraversion.

3.1.4 Marijuana

As with cigarettes, there is very little research on the relationship between marijuana use and the personality traits in the five-factor model. These studies either compared marijuana users to non-users or asked individuals about how often they use marijuana. The results indicate that higher levels of neuroticism, openness, and extraversion are associated with increased marijuana use, while lower levels of agreeableness and conscientiousness are related to more marijuana use (Wells & Stacey, 1976; Bachman & Jones, 1979; Terracciano et al., 2008; Fridberg, Vollmer, O'Donnell, & Skosnik, 2011; Cauchi & DeGiovanni, 2015; Mercado et al., 2016).

Although there is little research in the area of marijuana use and the five-factor model in general, extraversion has received the least amount of empirical attention. The two studies that have investigated extraversion found it to be an important factor for marijuana use. Mercado and colleagues (2016) suggested that for each standard deviation increase in extraversion and openness the likelihood of marijuana use increased by 20 percent and 40 percent, respectively. They also found that lower levels of conscientiousness and agreeableness were associated with a 20 percent higher likelihood of using marijuana (Mercado et al., 2016). Additionally, another study found that these personality traits were not only relevant for predicting marijuana use, but also marijuana withdrawal symptoms. Bachman and Jones (1979) discovered that high neuroticism and openness, and low extraversion accounted for 25 percent of the variance of cannabis withdrawal symptoms (Bachman & Jones, 1979). It is apparent that the relationship between marijuana use and the five-factor model has been drastically under studied, especially

extraversion. More research is needed in this area to be more confident on how certain personality traits influence marijuana use.

3.2 The Five-Factor Model and Criminal Outcomes

The connection between personality traits and criminal outcomes is not as developed as it should be in the criminological literature. While there has been research on the role of the five-factor model on criminal behavior, it seems that the research in this area is still growing, thus the findings should be viewed as preliminary. Additionally, the majority of the current research focuses on general crime categories rather than specific offenses, which makes it difficult to assess how personality traits affect specific criminal outcomes.

In general, studies have consistently found associations between criminal outcomes and lower levels of agreeableness and conscientiousness, and higher levels of neuroticism (Caspi, Moffitt, Silva, Stouthamer-Loeber, Krueger, & Schmutte, 1994; Heaven, 1996; Miller, Lynam & Leukefeld, 2003; Lynam, Caspi, Moffitt, Raine, Loeber, & Stouthamer-Loeber, 2005; Blickle, Schlegel, Fassbender, & Klein, 2006; Barlas & Egan, 2006; Egan, 2009; Egan & Campbell, 2009; Jones, Miller, & Lynam, 2011; Van Gelder & De Vries, 2012; Muris, Meesters, & Timmermans, 2013; Hosie, Gilbert, Simpson, & Daffern, 2014; Collette, Pakzad, & Bergheul, 2015; Slagt, Dubas, Deković, & Van Aken, 2015). The results for extraversion and openness have been mixed, and vary by the type of crime studied (Zuckerman, 1994; Dennison, Stough & Birgden, 2001; Samuels, Bienvenu, Cullen, Costa, Eaton, & Nestadt, 2004; Egan, Kavanagh, & Blair, 2005; Thiry, 2012; Becerra-García, García-León, Muela-Martínez & Egan, 2013; Jolliffe, 2013; O’Riordan & O’Connell, 2014).

This section will discuss the current state of the literature on how neuroticism, agreeableness, conscientiousness, extraversion, and openness affect criminal behavior. It will

examine the relationship between these five personality factors and four categories of criminal outcomes: general delinquency and arrest, violence and aggression, property crime, and public order crime. The gaps in this literature will be discussed in another section.

3.2.1 General Delinquency and Arrest

Studies that examine the relationship between the five-factor model of personality and delinquency or arrest use a general measure of criminal behavior. These studies usually use arrest measures, indices of various delinquent acts, or comparisons between offenders and non-offenders. The different measures all come to the same conclusion for neuroticism, agreeableness, and conscientiousness, but vary slightly on extraversion and openness.

There appears to be a positive relationship between neuroticism and delinquency/arrest, while agreeableness and conscientiousness have a negative relationship with delinquency/arrest (Caspi et al., 1994; Zuckerman, 1994; Miller, Lynam & Leukefeld, 2003; Samuels et al., 2004; Jones, Miller, & Lynam, 2011; Thiry, 2012; Van Gelder & De Vries, 2012; Jolliffe, 2013; Collette, Pakzad, & Bergheul, 2015; Slagt et al., 2015). For example, Samuels and colleagues (2004) compared individuals who had been arrested to individuals who had never been arrested. They discovered that those who had been arrested were higher in neuroticism, and lower in agreeableness and conscientiousness than individuals who had never been arrested, but there were no differences in extraversion or openness (Samuels et al., 2004). Another study found the same patterns for neuroticism and agreeableness on increases in endorsement of criminal sentiments (Zuckerman, 1994). Additionally, Miller and colleagues (2003) found that neuroticism, conscientiousness, and agreeableness could predict the stability of conduct problems, aggression, and symptoms of antisocial personality disorder (Miller, Lynam & Leukefeld, 2003).

Only a few studies found relationships between delinquency and the factors of extraversion and openness (Zuckerman, 1994; Thiry, 2012; Jolliffe, 2013; O’Riordan & O’Connell, 2014). For openness, both studies found that offenders are less open than non-offenders, especially female offenders (Thiry, 2012; Jolliffe, 2013). There is some disagreement over extraversion, with one study showing lower extraversion is associated with increased endorsement of criminal sentiments (Zuckerman, 1994), and another suggesting that higher extraversion is associated with criminal sanctions (O’Riordan & O’Connell, 2014). Jolliffe (2013) compared offenders to non-offenders, and concluded that female offenders are higher in extraversion than non-offenders, and that frequent female offenders have the highest levels of extraversion (Jolliffe, 2013). More research is needed on openness and extraversion in order to determine how these personality factors affect delinquency.

3.2.2 Violence and Aggression

The literature on the five-factor model and violence mostly examines self-reported violence or aggression, sex offenders, and violent offenders compared to non-violent offenders. In general, these studies find that higher levels of neuroticism, and lower levels of agreeableness and conscientiousness are associated with violent and aggressive behavior (Heaven, 1996; Dennison, Stough & Birgden, 2001; Lynam et al., 2005; Egan, Kavanagh, & Blair, 2005; Egan, 2009; Egan & Campbell, 2009; Becerra-García, García-León & Egan, 2012; Miller, Zeichner, & Wilson, 2012; Becerra-García et al., 2013; Muris, Meesters, & Timmermans, 2013; Hosie et al., 2014; Pease & Lewis, 2015).

As with the delinquency literature, there are mixed findings for extraversion and openness. Most of the extraversion studies suggest that lower extraversion is associated with violent crime (Dennison, Stough & Birgden, 2001; Samuels et al., 2004; Egan, Kavanagh, &

Blair, 2005; Becerra-García et al., 2013); however, one study shows that higher extraversion is related to reactive aggression (Muris, Meesters, & Timmermans, 2013). Openness only had three significant relationships, two positive (Becerra-García, García-León & Egan, 2012; Becerra-García et al., 2013) and one negative (Samuels et al., 2004). These mixed findings indicate that more research is needed on extraversion and openness to better identify their relationship with violence.

Several studies observed sex offenders specifically, and discovered that they were high in neuroticism, and low in agreeableness, conscientiousness, and extraversion (Dennison, Stough & Birgden, 2001; Egan, Kavanagh, & Blair, 2005; Becerra-García, García-León & Egan, 2012; Becerra-García et al., 2013). Additionally, sex offenders who had been abused as children had increases in openness and decreases in conscientiousness (Becerra-García, García-León & Egan, 2012).

3.2.3 Property Crime

There are only a few studies on how the five-factor model affects property crime. These studies examine either white-collar crime or theft. The studies on white-collar crime suggest that white collar criminals are high in conscientiousness (Collins & Schmidt, 1993; Blickle et al., 2006). This contradicts the majority of personality research, which indicates that individuals with low conscientiousness are more likely to engage in criminal outcomes. However, white-collar crimes are usually committed by business-minded individuals, and it is likely that these individuals would have higher levels of conscientiousness.

The studies that investigate theft have more typical results. They find that individuals with higher neuroticism, and lower agreeableness and conscientiousness are more likely to commit theft (Heaven, 1996; Egan & Taylor, 2010). For example, Egan and Taylor (2010) found

that these personality traits increased shoplifting and unethical consumer behavior (Egan & Taylor, 2010). There is a need for more research in the area of personality and property crime. The current state of the literature does not provide enough information on the true relationship.

3.2.4 Public Order Crime

As with property crime, there is not much research on the relationship between the five-factor model and public order crime. Illegal drug use does fall under the category of public order crime, but since the relationship between substance use and the five-factor model was discussed at length in the previous section, this section will only include public order crimes that are not related to drugs. The only public order crimes (other than illegal drug use) that have been studied with the five-factor model are vandalism and carrying weapons. These studies find that vandalism is associated with higher neuroticism, lower agreeableness, and lower conscientiousness (Heaven, 1996), while carrying weapons is only associated with lower agreeableness and conscientiousness (Barlas & Egan, 2006). More research is clearly needed in this area.

CHAPTER 4

HOW CAN CRIMINOLOGICAL THEORIES EXPLAIN THESE RELATIONSHIPS, WHAT'S MISSING, AND HOW WILL THIS DISSERTATION FILL THESE GAPS?

4.1 Can Criminological Theories Explain the Relationship Between Personality and Substance Use/Criminal Outcomes?

Throughout the last few sections, the relationship between personality characteristics and substance use has been established. Additionally, an association between personality and criminal outcomes has also been demonstrated. The question now is, can criminological theories explain these relationships? While there are dozens of crime theories, the three that best explain the associations between personality, substance use, and crime are: life-course criminology, biosocial criminology, and general strain theory.

4.1.1 Life-Course Criminology

Life-course criminology, unlike other areas of criminological research, is not based on a single theory. This body of research is, in reality, more like a paradigm or perspective that acknowledges the importance of examining within-individual changes in crime and criminogenic influences across the life course. For the most part, life-course criminologists acknowledge stability/continuity of behavior as well as change in behavior at different points in the life course as the result of various life-altering events (turning points) (Sampson & Laub, 2003). This paradigm pays particular attention to the possibility that the variables that play an important role in the timing of the onset of crime may not be the same variables that cause the persistence of, intensity of, or desistance from crime.

The idea of stability in behavior is incredibly important within life-course theories, though the causes of stability vary by researcher. For example, Gottfredson and Hirschi (1990)

believe that low self-control is the underlying cause of all crime, and once this trait is established in childhood, it is stable throughout an individual's entire life (Gottfredson & Hirschi, 1990). Similarly, Moffitt's (1993) conception of life-course persistent offenders suggests that there is a small group of individuals who consistently offend throughout their lives because of neuropsychological deficits. These neuropsychological deficits refer to how anatomical structures and physiological processes within the nervous system influence psychological characteristics such as temperament, behavioral development, cognitive abilities, or all three (Moffitt, 1993).

This behavioral stability described by life-course theories could relate to personality. Personality refers to "characteristic patterns of thought, emotion, and behavior" (Funder, 2001), and these traits are thought to persist over time and consistently produce behavioral symptoms across different situations (Hay & Meldrum, 2015). This sounds quite similar to Gottfredson and Hirschi's (1990) idea of self-control and Moffitt's (1993) suggestion of neuropsychological deficits. It is possible that personality characteristics play a role in both the development of self-control and neuropsychological deficits. While there is little research in the area, at least one study found that personality characteristics influence psychosocial adjustment, which is associated with neuropsychological deficits (Ylvisaker & Gobble, 1987). Additionally, studies have found links between self-control and the personality dimensions of agreeableness and conscientiousness, where individuals high in these components are thought to have higher levels of self-control (Jensen-Campbell, Knack, Waldrip, & Campbell, 2007; Hay & Meldrum, 2015).

Research on low self-control and neuropsychological deficits consistently shows associations with substance use and criminal outcomes (Keane, Maxin, & Teevan, 1993; Nagin, Farrington, & Moffitt, 1995; Longshore, 1998; Baron, 2003; McGloin & Pratt, 2003; Piquero &

White, 2003; Tittle, Ward & Grasmick, 2003; Holtfreter, Reising, Piquero & Piquero, 2010). Additionally, personality studies have suggested that personality traits are stable across the life-course (Conley, 1985; Helson & Moane, 1987; McCrae & Costa, 1999; Roberts, Caspi, & Moffitt, 2001; Cobb-Clark & Schurer, 2012). Future research should examine if and how personality characteristics fit in with some of the life-course concepts, such as low self-control and neuropsychological deficits.

4.1.2 Biosocial Criminology

Biosocial criminology emphasizes that any attempt to understand crime must consider nature and nurture and how they operate together. Central to this is a person-by-environment model in which the characteristics of the person interact with social environments to affect human behavior. This is often referred to as a gene environment interaction.

Researchers in biosocial criminology assert that almost any human behavior, including personality characteristics, is influenced in some way by genetics (Walsh & Beaver, 2009). Specifically, about 30 to 60 percent of the variance in personality traits is due to an individual's genetics (Benjamin, Ebstein, & Lesch, 1998). Research has found that specific genes are associated with personality traits such as, novelty seeking, reward dependence, anxiety, and dependence (Benjamin, Ebstein, & Lesch, 1998; Plomin & Caspi, 1998).

There has also been research on the effect of genetics on substance use. As with the genetics of personality, about 30 to 60 percent of the variance in the development of drug addiction can be attributed to genetic factors (Kreek, Nielsen, Butelman, & LaForge, 2005). These types of studies generally find that there are associations between particular genes and increased or decreased likelihoods of substance use (Luo, Zuo, Kranzler, Zhang, Wang, & Gelernter, 2008). Studies have also suggested that certain genes affect which drug an individual

will develop an addiction to. It appears that genetic variation may play a role in addiction to alcohol, nicotine, opiates, cocaine, and other stimulants (Comings, Muhleman, Johnson, Verde, Saucier, & MacMurray, 1997; LaForge, Yuferov & Kreek, 2000; Kreek, Nielsen, & LaForge, 2004; Kreek, Nielsen, Butelman, & LaForge, 2005).

Additionally, one study found that there are interaction effects between personality traits and specific genes, which lead to increased likelihood of substance abuse. Specifically, extraversion and openness are the personality traits most associated with particular genes, while agreeableness and neuroticism do have relationships with genes, but the association varies by gender (Luo et al., 2008). Research should spend more time testing interactions between personality and genetics because it is clear that genetics influence both personality and drug related outcomes.

4.1.3 General Strain Theory

General strain theory is more of a sociological explanation to crime than life-course or biosocial criminology. This theory asserts that there are three types of strain an individual can experience (losing something they value, being treated in an aversive or negative manner by others, and being unable to achieve their goals), and these feelings of strain can lead to criminal outcomes (Agnew, 1999). The strains that are the most likely to cause crime are perceived as high in magnitude and/or unjust, are associated with low self-control, and/or create some pressure or incentive to engage in criminal coping (Agnew, 2006). Additionally, conditioning variables, such as individual characteristics, can affect how an individual copes with the strain they feel, and what their behavioral reaction will be (Agnew, 2013).

Studies have found that low self-control and personality traits do moderate the relationship between strain and crime (Agnew, Brezina, Wright, & Cullen, 2002; Hay & Evans,

2006; Botchkovar, Tittle, & Antonaccio, 2009). For example, Hay and Evans (2006) discovered that certain types of strain produced greater delinquency for individuals with low self-control. However, Botchkovar and colleagues (2009) found no interaction between strain and self-control. Another study suggested that there was an interaction between strain and neuroticism, meaning that individuals high in neuroticism are more likely to respond to strain with delinquency (Botchkovar, Tittle, & Antonaccio, 2009). In order to better understand how personality affects coping with strain, more research should focus on the role of personality factors from the five-factor model.

4.2 Gaps in the Literature

Now that the current state of the literature has been considered in regard to how the five-factor model affect substance use and criminal involvement, the limitations of this literature will be discussed. The limitations in the current literature fall into three broad categories: limited measures of substance use and criminal outcomes, measurement of personality, and discussion of results.

4.2.1 Limited Measures of Substance Use and Criminal Involvement

Although there is an abundance of literature on the link between personality characteristics and measures of substance use and criminal involvement, there are several problems with the drug and crime measures used in most studies. First, the majority of studies focus on general substance use and crime measures. For substance use, the general measure is usually substance abuse and/or substance dependence, which means that an individual meets the criteria for abuse/dependence of any substance according to the Diagnostic and Statistical Manual of Mental Disorders (DSM). The general crime measure usually focuses on whether an individual has been arrested, or an index made up of many different types of crimes. The

problem with these general measures is that they implicitly argue that personality factors should affect drug use and crime the same way (i.e. extraversion affects marijuana dependence and heroin dependence the same way). It is possible that certain personality factors affect the use of particular drugs or the commission of certain crimes, rather than drug use or crime in general. Unfortunately, these studies cannot capture those nuances with such general measures.

Second, when individual drugs or crimes are used as measures (as opposed to a general measures), few studies use a large variety of different substances and crimes. Individuals may differ based on the types of drugs they use or which crimes they choose to commit. We cannot assume that because an individual uses one type of drug or is involved with one type of crime, that they are involved with all kinds of drugs and crime. Thus, information on a wide array of drugs is preferable to only one or two. Similarly, while there is ample research on the association between personality and some types of drugs and crimes, there is very little research on others. For example, there have been dozens of studies on personality factors and alcohol use, but only a handful on marijuana (Bachman & Jones, 1979; Wells & Stacey, 2006; Terracciano et al., 2008; Fridberg et al., 2011; Turiano et al., 2012; Benotsch et al., 2013; Cauchi & DeGiovanni, 2015). Likewise, there are many studies on how personality affects violence, but few on property crime and public order crimes other than drug use (Collins & Schmidt, 1993; Heaven, 1996; Obeidallah & Earls, 1999; Barlas & Egan, 2006; Egan & Taylor, 2010; Aaltonen et al., 2013; Eitle & Eitle, 2015).

Third, studies generally look at only one measure of how often an individual used drugs or committed crimes (ever, past 12 months, past 30 days). It is likely that an individual who used an illegal drug once is different than an individual who has used that same drug multiple times in the last month. However, both of these individuals would fall into the ever category. It is

important to consider that certain personality traits could affect ever measures of drugs or crime, while others affect frequently using a drug or committing crimes.

4.2.2 Measurement of Personality

The overwhelming majority of research that examines the impact of personality traits uses continuous measures of the personality traits. While there is no implicit problem with this, it might not tell the whole story. It is possible that the effects of certain personality traits do not manifest unless the individual is at a very high or very low level of this trait. If this is the case, then the majority of studies are missing this nuance and not accurately capturing the effects of personality factors. Only one study has examined the effects of personality on substance use by looking at personality percentiles, and they determined that relapse rates are dependent on the specific level of personality an individual is in (Ottomanelli, 1994).

4.2.3 Discussion of Results

The last category of limitations focuses not on how the majority of studies are conducted, but how they discuss their results. When discussing results, most studies simply say that a certain personality factor had an effect on a given outcome variable. The problem with this is that it misses the most interesting and important part of the results. With this type of research, it is the differing results that are of the outmost importance. Do certain personality characteristics affect one type of substance use or criminal outcome, but not another? Unfortunately, the effects of personality traits are not usually compared on the outcome measure. It is important to know if personality has differential effects based on the particular drug or crime measured. For example, knowing that neuroticism impacts alcohol use, but not marijuana use could be beneficial for treatment professionals.

Additionally, since personality research is fairly new to the field of criminology it has not been integrated with criminological theories. It is important to determine how personality characteristics fit in with our current criminological theories. It is possible that by integrating personality traits into our current theories, we could explain more of the variation in criminal outcomes. If the field of criminology adopted personality characteristics into their theories, it might be easier for criminologists to study these traits. This dissertation discussed how criminological theories might be able to explain the connection between personality and outcomes such as substance use and criminal involvement in the previous section.

4.3 How Will This Dissertation Fill These Gaps?

This section will discuss how this dissertation will fill the gaps in the literature that were addressed in the previous section. Additionally, the research questions examined in this dissertation will be stated.

The first category of gaps in the literature, which involves limited measures of drug use and criminal outcomes, will be addressed by studying the effects of a wide variety of drugs and crimes. For drug use, there are four measures of past 12 month drug use, four measures of past 30 day drug use, and four measures of drug dependence. For criminal involvement, there are two general crime measures, three measures of violent crime, five measures of property crime, and three measures of public order crime. By examining the specific relationships between personality factors and such a wide variety of drug and crime measures, it will be easier to determine which personality traits affect different types of drug use and criminal involvement.

The measurement of personality variables as continuous measures is the topic of the second category of limitations in the literature. This dissertation addresses this limitation by splitting each personality characteristic into four quartiles, and running separate statistical

models that compare each of the quartiles. By doing this, it will be easier to see if the effects of personality traits differ based on the level of personality. Additionally, it is important to know if the quartile results are different from the results garnered from the continuous personality measures, since the majority of personality research is conducted using continuous measures.

Finally, the last category of gaps in the literature argues that the discussion of results in previous studies misses several nuances including differences in the effects of personality that vary by different types of drug use and criminal involvement. This dissertation addresses this limitation in the literature by focusing on the personality differences that emerge for different types of drug use and criminal involvement.

Specifically, this dissertation will address the following six research questions:

Personality and Drug Use

1. Is there a relationship between personality traits (five-factor model) and specific forms of drug use?
2. Do the effects of personality traits (five-factor model) on drug use vary by the type of drug used?
3. Do the effects of personality traits (five-factor model) on drug use differ between continuous measures of personality and quartile measures?

Personality and Criminal Outcomes

4. Is there a relationship between personality traits (five-factor model) and specific forms of crime?
5. Do the effects of personality traits (five-factor model) on criminal outcomes vary by the type of crime committed?

6. Do the effects of personality traits (five-factor traits and other traits) on criminal outcomes differ between continuous measures of personality and quartile measures?

CHAPTER 5

METHODS

Prior chapters have described the five-factor model of personality, the current literature on the relationship between these personality traits and outcomes such as substance use and crime, the way criminological theories can explain these associations, the gaps in the literature, and how this dissertation will fill the gaps in the literature. I will now discuss the data that are used in this study, how the variables are constructed and operationalized, and the analytic strategy.

5.1 Data

The current study uses data from The National Longitudinal Study of Adolescent to Adult Health (Add Health). The Add Health is a nationally representative longitudinal study that began with U.S. adolescents in grades 7 through 12 during the 1994 to 1995 school year. The original cohort has been followed and interviewed a total of four times, most recently in 2008, when the cohort was in their mid-twenties to early-thirties.

The Add Health used a stratified sampling approach and the Quality Education Data as their primary sampling frame. With this database of schools, they selected 80 high schools that were representative of schools in the United States with respect to: size, ethnicity, region of country, type, and urbanicity. A high school met the study criteria if they had more than 30 students enrolled and had an 11th grade. If a school chose to not participate, they were replaced with another school within the stratum. Over 70 percent of the original schools chosen to participate in the study decided to do so. Middle schools were also sampled. Each high school that chose to participate in the study was asked to identify feeder schools. The Add Health defines these as schools that have a 7th grade and sent at least five of their graduating students to the high school identifying them. One feeder school from each high school was chosen to

participate in the study, and their probability of selection was proportional to the amount of students it sent to the high school. The result of this sampling was pairs of schools (one middle school and one high school) from 80 communities, with a total of 132 schools in the study.

The first wave of data (Wave I) was collected during the 1994 to 1995 school year on adolescents in grades 7 through 12. Wave I contains in-home samples and questionnaires (main core sample), in-school samples and questionnaires, as well as school administrator and parent questionnaires. The current study only uses data from the in-home sample and questionnaire, so only that sample will be described. Adolescents eligible for the in-home sample were all students listed on a school roster of any participating school. For each school, this list of students was stratified by sex and school grade, and about 17 students were randomly selected from each stratum. This resulted in a total of 12,105 adolescents, with approximately 200 from each school pair.

The second wave of data (Wave II) was collected approximately one year after Wave I (April to August 1996). The Wave II in-home interviews re-interviewed the adolescents who participated in Wave I, with three exceptions. First, if the respondent was in the 12th grade when they were originally interviewed, they were not interviewed at Wave II (unless they were part of the genetic sample). Second, if the respondent was only interviewed in the Wave I disabled sample, they were not interviewed at Wave II. Third, Wave II added 65 respondents who were not interviewed at Wave I, but were part of the genetic sample. The interview at Wave II was very similar to the interview at Wave I.

The third wave of data (Wave III) was collected between 2001 and 2002, by re-interviewing the original respondents. During the Wave III interviews the respondents were between the ages of 18 and 28. The only respondents not included in Wave III were those who

could not be located or were out of the country. The questions asked to respondents during Wave III were different than those in Waves I and II. At Wave III the respondents were young adults, rather than adolescents, so questions more pertinent to adults were asked.

The fourth wave of data (Wave IV) was collected in 2008 with the same respondents interviewed at Waves I through III. At the time of the Wave IV interviews, the respondents were between the ages of 24 and 34. As with Wave III, if a respondent could not be located for Wave IV they were not included in the study. Over 90 percent of the original sample was located and approximately 80 percent of the original sample was re-interviewed for Wave IV. The questions asked in Wave IV were different than the ones in Waves I through III because as the sample ages, questions about their life must change.

5.2 Variables

This section will describe the independent, dependent, and control variables used in the current study. The variables section is broken up into four categories: personality measures, drug use measures, criminal outcome measures, and control variable measures.

Overall the measures used in this study have been found to be reliable and valid. The personality measures used are constructed by combining several highly correlated questions that measure the same underlying personality factor. Studies consistently use personality measures from the Add Health data to study a wide variety of outcomes (Lynam & Widiger, 2001; Miller, Lynam, Widiger, & Leukefeld, 2001; Lynam, 2002; Miller & Lynam, 2003; Lynam & Derefinko, 2006; Derefinko & Lynam, 2007; Gudonis, Miller, Miller, & Lynam, 2008; Beaver, Barnes, May, & Schwartz, 2011). Additionally, self-report measures of drug use and criminal involvement have regularly been shown to be reliable and valid, in the sense that individuals tend to accurately report their drug use and criminal involvement (Akers, Massey, Clarke, & Lauer,

1983; Murray & Perry, 1987; Winters, Stinchfield, Henly, & Schwartz, 1991; Üstüna, Comptonb, Magerb, Baborc, Baiyewud, Chatterjia, Cottlerb, Göğüşe, Mavreasf, Petersg, Pullh, Saundersi, Smeetsj, Stipeck, Vrastil, Hasinm, Roomn, Van den Brinko, Regierp, Blaineq, Grantr, & Sartoriuss, 1997; Thornberry & Krohn, 2000).

5.2.1 Personality Measures

At Wave IV respondents were asked questions about their personality. The Add Health constructed personality scales for each of the traits in the five-factor model by using several individual questions from the personality section. These personality scales are used as independent variables in the current study. Below is a description of how each personality scale was constructed.

Extraversion. The scale of extraversion denotes the level of extraversion an individual possess. A higher score indicates a higher level of extraversion. This scale was constructed using four questions from the personality section of Wave IV. The questions asked were: 1) I am the life of the party; 2) I don't talk a lot; 3) I talk to a lot of different people at parties; and 4) I keep in the background. For each of these statements respondents indicated how much they agreed by selecting one of the following responses: strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree. The scale was created by adding the responses of each question. Each response category was given a value of one through five, starting with strongly agree at one, through strongly disagree at five. This resulted in 17 possible categories for respondents to fall into, with higher categories indicating higher levels of extraversion. It should be noted that questions one (I am the life of the party) and three (I talk to a lot of different people at parties), reversed the coding to be compatible with the other questions.

Neuroticism. The scale of neuroticism denotes the level of neuroticism an individual possess. A higher score indicates a higher level of neuroticism. This scale was constructed using four questions from the personality section of Wave IV. The questions asked were: 1) I have frequent mood swings; 2) I am relaxed most of the time; 3) I get upset easily; and 4) I seldom feel blue. For each of these statements respondents indicated how much they agreed by selecting one of the following responses: strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree. The scale was created by adding the responses of each question. Each response category was given a value of one through five, starting with strongly agree at one, through strongly disagree at five. This resulted in 17 possible categories for respondents to fall into, with higher categories indicating higher levels of neuroticism. It should be noted that questions one (I have frequent mood swings) and three (I get upset easily), reversed the coding to be compatible with the other questions.

Agreeableness. The scale of agreeableness denotes the level of agreeableness an individual possess. A higher score indicates a higher level of agreeableness. This scale was constructed using four questions from the personality section of Wave IV. The questions asked were: 1) I sympathize with others' feelings; 2) I am not interested in other people's problems; 3) I feel others' emotions; and 4) I am not really interested in others. For each of these statements respondents indicated how much they agreed by selecting one of the following responses: strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree. The scale was created by adding the responses of each question. Each response category was given a value of one through five, starting with strongly agree at one, through strongly disagree at five. This resulted in 17 possible categories for respondents to fall into, with higher categories indicating higher levels of agreeableness. It should be noted that questions one (I sympathize with others'

feelings) and three (I feel others' emotions), reversed the coding to be compatible with the other questions.

Conscientiousness. The scale of conscientiousness denotes the level of conscientiousness an individual possess. A higher score indicates a higher level of conscientiousness. This scale was constructed using four questions from the personality section of Wave IV. The questions asked were: 1) I get chores done right away; 2) I often forget to put things back in their proper place; 3) I like order; and 4) I make a mess of things. For each of these statements respondents indicated how much they agreed by selecting one of the following responses: strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree. The scale was created by adding the responses of each question. Each response category was given a value of one through five, starting with strongly agree at one, through strongly disagree at five. This resulted in 17 possible categories for respondents to fall into, with higher categories indicating higher levels of conscientiousness. It should be noted that questions one (I get chores done right away) and three (I like order), reversed the coding to be compatible with the other questions.

Openness to Experience. The scale of openness denotes the level of openness to experience an individual possess. A higher score indicates a higher level of openness to experience. This scale was constructed using four questions from the personality section of Wave IV. The questions asked were: 1) I have a vivid imagination; 2) I am not interested in abstract ideas; 3) I have difficulty understanding abstract ideas; and 4) I do not have a good imagination. For each of these statements respondents indicated how much they agreed by selecting one of the following responses: strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree. The scale was created by adding the responses of each question. Each response category was given a value of one through five, starting with strongly agree at one, through

strongly disagree at five. This resulted in 17 possible categories for respondents to fall into, with higher categories indicating higher levels of openness to experience. It should be noted that question one (I have a vivid imagination), reversed the coding to be compatible with the other questions.

5.2.2 Drug Use Measures

At Wave IV respondents were asked about their drug use. Respondents were asked a variety of questions about their drug use and frequency. These drug use questions are the dependent variables for one part of the current study. Below is a description of the drug use variables.

Last 12-Month Alcohol Use. A continuous measure of how many days a respondent drank alcohol during the past 12 months. This variable has six response categories: none, 1 or 2 days in the past 12 months, once a month or less (3 to 12 days in the past 12 months), 2 or 3 days a month, 1 or 2 days a week, 3 to 5 days a week, and every day or almost every day.

Last 12-Month Binge Drinking. A continuous measure of how many days a respondent had 5 or more (males)/4 or more (females) drinks in a row during the past 12 months. This variable has six response categories: none, 1 or 2 days in the past 12 months, once a month or less (3 to 12 days in the past 12 months), 2 or 3 days a month, 1 or 2 days a week, 3 to 5 days a week, and every day or almost every day.

Last 12-Month Marijuana Use. A continuous measure of how many days a respondent used marijuana during the past 12 months. This variable has six response categories: none, 1 or 2 days in the past 12 months, once a month or less (3 to 12 days in the past 12 months), 2 or 3 days a month, 1 or 2 days a week, 3 to 5 days a week, and every day or almost every day.

Last 12-Month Favorite Drug Use. A continuous measure of how many days a respondent used their favorite drug during the past 12 months. This variable has six response categories: none, 1 or 2 days in the past 12 months, once a month or less (3 to 12 days in the past 12 months), 2 or 3 days a month, 1 or 2 days a week, 3 to 5 days a week, and every day or almost every day. A respondent's favorite drug was calculated based on the drugs they said yes to having used.

Past 30 Day Cigarette Use. A continuous measure of how many days in the last 30 days the respondent smoked cigarettes. The respondents answered with the number of days, which ranged from zero to 30.

Past 30 Day Alcohol Use. A continuous measure of how many days in the last 30 days the respondent drank alcohol. This variable has six response categories: none, 1 or 2 days in the past 12 months, once a month or less (3 to 12 days in the past 12 months), 2 or 3 days a month, 1 or 2 days a week, 3 to 5 days a week, and every day or almost every day.

Past 30 Day Marijuana Use. A continuous measure of how many days in the last 30 days the respondent used marijuana. This variable has six response categories: none, 1 or 2 days in the past 12 months, once a month or less (3 to 12 days in the past 12 months), 2 or 3 days a month, 1 or 2 days a week, 3 to 5 days a week, and every day or almost every day.

Past 30 Day Favorite Drug Use. A continuous measure of how many days in the last 30 days the respondent used their favorite drug. This variable has six response categories: none, 1 or 2 days in the past 12 months, once a month or less (3 to 12 days in the past 12 months), 2 or 3 days a month, 1 or 2 days a week, 3 to 5 days a week, and every day or almost every day.

Nicotine Dependence. A binary measure of whether a respondent has ever been nicotine dependent. If the respondent has been nicotine dependent in their lifetime they were coded as 1,

otherwise they were coded as 0. In order to determine whether a respondent is dependent on a substance they are asked a series of questions about their use. Each of these questions represents one of the symptoms of dependence according to the DSM-IV. In order to meet the dependence criteria, an individual must have at least three of the symptoms within one year.

Alcohol Dependence. A binary measure of whether a respondent has ever been alcohol dependent. If the respondent has been alcohol dependent in their lifetime they were coded as 1, otherwise they were coded as 0.

Marijuana Dependence. A binary measure of whether a respondent has ever been dependent on marijuana. If the respondent has been dependent on marijuana in their lifetime they were coded as 1, otherwise they were coded as 0.

Favorite Drug Dependence. A binary measure of whether a respondent has ever been dependent on their favorite drug. If the respondent has been dependent on their favorite drug in their lifetime they were coded as 1, otherwise they were coded as 0.

5.2.3 Criminal Outcome Measures

At Wave IV respondents were asked about their criminal involvement. Respondents were asked a variety of questions about the types of crimes they committed during the past 12 months. These crime questions are dependent variables in the current study. Below is a description of the criminal outcome variables.

Arrest. A binary measure of whether a respondent has ever been arrested. If the respondent answered yes, they were coded as 1 and if they answered no, they were coded as 0.

Incarceration. A binary measure of whether a respondent has ever spent time in a jail, prison, juvenile detention center or other correctional facility. If the respondent answered yes, they were coded as 1 and if they answered no, they were coded as 0.

Robbery. A binary measure of whether a respondent used or threatened to use a weapon to get something from someone in the past 12 months. If the respondent answered yes, they were coded as 1 and if they answered no, they were coded as 0.

Fighting. A binary measure of whether a respondent took part in a physical fight where a group of their friends was against another group in the past 12 months. If the respondent answered yes, they were coded as 1 and if they answered no, they were coded as 0.

Serious Fighting. A binary measure of whether a respondent got into a serious physical fight in the last 12 months. If the respondent answered yes, they were coded as 1 and if they answered no, they were coded as 0.

Burglary. A binary measure of whether a respondent went into a house or building to steal something in the last 12 months. If the respondent answered yes, they were coded as 1 and if they answered no, they were coded as 0.

Theft Over 50 Dollars. A binary measure of whether a respondent stole something worth more than \$50 in the last 12 months. If the respondent answered yes, they were coded as 1 and if they answered no, they were coded as 0.

Theft Under 50 Dollars. A binary measure of whether a respondent stole something worth less than \$50 in the last 12 months. If the respondent answered yes, they were coded as 1 and if they answered no, they were coded as 0.

Check Fraud. A binary measure of whether a respondent deliberately wrote a bad check in the last 12 months. If the respondent answered yes, they were coded as 1 and if they answered no, they were coded as 0.

Credit Card Fraud. A binary measure of whether a respondent used someone else's credit card, bank card, or automatic teller card without their permission or knowledge in the last 12

months. If the respondent answered yes, they were coded as 1 and if they answered no, they were coded as 0.

Vandalism. A binary measure of whether a respondent deliberately damaged property that didn't belong to them in the last 12 months. If the respondent answered yes, they were coded as 1 and if they answered no, they were coded as 0.

Drug Sale. A binary measure of whether a respondent sold marijuana or other drugs in the last 12 months. If the respondent answered yes, they were coded as 1 and if they answered no, they were coded as 0.

Stolen Property. A binary measure of whether a respondent bought, sold, or held stolen property in the last 12 months. If the respondent answered yes, they were coded as 1 and if they answered no, they were coded as 0.

5.2.4 Control Variable Measures

Age. A continuous measure of the respondent's age, which was measured at Wave I. As such, the respondents are older than their age variable. This measure is still appropriate because the age distribution amongst the sample is the same at Wave IV as it is in Wave I.

Male. A binary measure of whether a respondent is male or female. Males were coded as 1, while females were coded as 0.

White. A binary measure indicating the race of the respondent from the observation of the interviewer. If the interviewer indicated that the respondent was white they were coded as 1, otherwise they were coded as 0.

Black. A binary measure indicating the race of the respondent from the observation of the interviewer. If the interviewer indicated that the respondent was black they were coded as 1, otherwise they were coded as 0.

Married. A binary measure of whether a respondent has ever been married. If the respondent has been married they were coded as 1, otherwise they were coded as 0.

College Degree. A binary measure of whether a respondent has a college degree. If the respondent has a college degree they were coded as 1, otherwise they were coded as 0.

Income. A continuous measure of a respondent's household income. This variable has 12 response categories: less than \$5,000; \$5,000 to \$9,999; \$10,000 to \$14,999; \$15,000 to \$19,999; \$20,000 to \$24,999; \$25,000 to \$29,999; \$30,000 to \$39,999; \$40,000 to \$49,999; \$50,000 to \$74,999; \$75,000 to \$99,999; \$100,000 to \$149,999; and \$150,000 or more.

5.3 Analysis Plan

The analyses for the current study are divided into three sections. The first section will focus on univariate and bivariate statistics. It will present and describe the descriptive statistics and bivariate correlations for all the variables in the study. The results of the analyses pertaining to how personality affects drug use are presented second, followed by the results pertaining to the impact of personality on criminal involvement.

Each of these sections proceeds as follows. First, descriptive statistics will be presented on all of the variables used in the study. Second, bivariate correlations between all the variables used in the personality and drug use analyses will be presented, followed by the bivariate correlations between all the variables used in the personality and criminal outcome analyses. Third, ordinary least squares regression is used to test the association between personality factors and last 12-month drug use of: alcohol, binge drinking, marijuana, and favorite drug. Fourth, ordinary least squares regression is used to test the effects of personality on past 30-day drug use of: cigarettes, alcohol, marijuana, and favorite drug. Fifth, the relationship between personality factors and drug dependence (nicotine dependence, alcohol dependence, marijuana dependence,

and favorite drug dependence) is tested using logistic regression. Sixth, logistic regression is used to test the relationship between personality factors and general crime measures (arrest and incarceration). Seventh, the impact of personality on violent crime (robbery, fighting, serious fighting) is examined using logistic regression. Eighth, the effects of personality on property crime (burglary, theft over fifty dollars, theft under fifty dollars, credit card fraud, and check fraud) are also tested using logistic regression. Lastly, logistic regression is once again used to determine the influence of personality on public order crimes (drug sale, vandalism, and dealing in stolen property).

For each analysis, the personality variables are presented as a continuous variable and also split into four quartiles. First, the full continuous personality measure is used to predict the substance use or criminal outcome. Then each personality trait is split into four quartiles, bottom 25 percent (quartile 1), bottom middle 25 percent (quartile 2), top middle 25 percent (quartile 3), and top 25 percent (quartile 4). Each table includes five models, the continuous measure, quartile 1 as reference group, quartile 2 as reference group, quartile 3 as reference group, and quartile 4 as reference group. In the quartile models, the effect of each quartile on the outcome variable is being compared to the reference quartile. These analyses will be able to show whether each personality trait has differing effects on the outcome variable that vary by quartile. Additionally, we will be able to see if the results of the continuous measure appear substantively different than those garnered from the quartile measures.

It should be noted that all of the analyses conducted throughout this dissertation use measures collected at Wave IV. In general, the personality traits used in this dissertation (the five-factor model of personality) have been found to be stable across the life-course (Conley, 1985; Helson & Moane, 1987; McCrae & Costa, 1999; Roberts, Caspi, & Moffitt, 2001; Cobb-

Clark & Schurer, 2012). As such, temporal order is not much of an issue in this study because the personality traits measured at Wave IV have most likely been very similar throughout each individual's life. However, because these measures were all collected at the same time, there is the possibility that the drug or crime measures used are affecting the personality measures, instead of the other way around (which this dissertation predicts).

5.3.1 Personality and Last 12-Month Drug Use

Ordinary least squares regression is used to test the relationship between personality characteristics and last 12-month drug use. The personality factors used as independent variables are: neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience. These personality traits are regressed onto several drugs in order to see if certain personality traits are associated with particular drugs. The drugs used in these analyses are: alcohol, binge drinking, marijuana, and favorite drug. Results are presented for the four quartiles and the full continuous personality variables.

5.3.2 Personality and Past 30-Day Drug Use

Ordinary least squares regression is used to test the relationship between personality characteristics and past 30-day drug use. The personality factors used as independent variables are: neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience. These personality traits are regressed onto several drugs in order to see if certain personality traits are associated with particular drugs. The drugs used in these analyses are: cigarettes, alcohol, marijuana, and favorite drug. Results are presented for the four quartiles and the full continuous personality variables.

5.3.3 Personality and Drug Dependence

Logistic regression is used to test the relationship between personality factors and dependence to particular drugs. The personality factors used as independent variables are: neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience. These personality traits are regressed onto measures of drug dependence to investigate whether personality can affect dependence on certain substances. The drug dependence measures in these analyses are: nicotine dependence, alcohol dependence, marijuana dependence, and favorite drug dependence. Results are presented for the four quartiles and the full continuous personality variables.

5.3.4 Personality and General Crime Measures

Logistic regression is used to test the relationship between personality traits and general crime outcomes. The personality factors used as independent variables are: neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience. These personality factors are regressed onto general measures of crime to see whether personality impacts these general crime measures. The general measures in these analyses are arrest and incarceration. Results are presented for the four quartiles and the full continuous personality variables.

5.3.5 Personality and Violent Crimes

Logistic regression is used to test the relationship between personality traits and violent crimes. The personality factors used as independent variables are: neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience. These personality factors are regressed onto measures of violent crime to determine whether personality traits effect violent crime commission. The violent crimes in these analyses are: robbery, fighting, and serious fighting. Results are presented for the four quartiles and the full continuous personality variables.

5.3.6 Personality and Property Crimes

Logistic regression is used to test the relationship between personality traits and property crimes. The personality factors used as independent variables are: neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience. These personality factors are regressed onto measures of property crime to examine the effects of personality on property crime commission. The property crimes in these analyses are: burglary, theft over 50 dollars, theft below 50 dollars, credit card fraud, and check fraud. Results are presented for the four quartiles and the full continuous personality variables.

5.3.7 Personality and Public Order Crimes

Logistic regression is used to test the relationship between personality traits and public order crimes. The personality factors used as independent variables are: neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience. These personality factors are regressed onto measures of public order crimes to see whether personality traits have effects on public order crimes. The public order crimes in these analyses are: vandalism, drug sale, and dealing in stolen property. Results are presented for the four quartiles and the full continuous personality variables.

CHAPTER 6

RESULTS

The results of this dissertation are presented in three sections labeled 6.1, 6.2, and 6.3. In section 6.1 the descriptive statistics and bivariate correlations for the entire study will be presented. In section 6.2, the results of the analyses pertaining to the effects of personality on drug use will be presented (i.e. research questions 1-3). In section 6.3, the results of the analyses pertaining to the effects of personality on criminal involvement will be presented (i.e. research questions 4-6). Within sections 6.2 and 6.3, the results will be organized by research question.

6.1 Results: Descriptive Statistics and Bivariate Correlations

Tables 6.1-6.4 present the descriptive statistics for all of the variables included in the personality and drug use analyses. Specifically, table 6.1 displays the descriptive statistics for the personality traits, table 6.2 displays the descriptive statistics for the drug use variables, table 6.3 displays the descriptive statistics for the criminal outcomes, and table 6.4 displays the descriptive statistics for the control variables.

The univariate results show that the sample is fairly even with males and females (though there are slightly more females), the majority of the sample is white, the sample is split pretty evenly between married and non-married individuals (though there are slightly more non-married individuals), most of the sample does not have a college degree, and the average household income is over \$62,000. Additionally, the average age of the sample is 28 years. Note, table 6.4 displays the age of the respondents at wave I (see Chapter 5 for more information on the age variable).

These descriptive statistics show that most individuals fall close to the middle on most of the personality trait spectrums for both the full continuous variables and the quartile measures.

The descriptive statistics also reveal that the majority of the sample did not use drugs very often and were not very likely to have been dependent on a drug throughout their life. Additionally, the sample did not engage in much criminal activity.

Tables 6.5 and 6.6 show the results of bivariate correlations between all the variables used in the personality and drug use analyses (table 6.5) and all the variables used in the personality and criminal outcomes analyses (table 6.6). These tables both demonstrate that most of the variables show significant correlations with one another.

6.2 Results: Personality and Drug Use

The analyses presented in this section use the analytical techniques outlined in chapter 5 (METHODS) in order to answer the following three research questions:

1. Is there a relationship between personality traits (five-factor model) and specific forms of drug use?
2. Do the effects of personality traits (five-factor model) on drug use vary by the type of drug used?
3. Do the effects of personality traits (five-factor model) on drug use differ between continuous measures of personality and quartile measures?

6.2.1 Research Question 1

The first research question asks: Is there a relationship between personality traits (five-factor model) and specific forms of drug use?

Tables 6.7-6.10 examine the effect of personality on last 12-month use of alcohol, binge drinking, marijuana, and favorite drug. Extraversion had positive and significant effects on all four drug-using behaviors, while conscientiousness had negative and significant effects on all of the drugs. Agreeableness and openness to experience had significant effects on all the types of

drug use except favorite drug use, with agreeableness having a negative effect and openness to experience having a positive effect. Neuroticism had a positive and significant effect on all the types of drug use except alcohol use.

Tables 6.11-6.14 investigate how personality affects the past 30-day use of cigarettes, alcohol, marijuana, and favorite drug. As with last 12-month use of drugs, extraversion and conscientiousness had significant effects on the past 30-day use of every type of drug. Again, the effects of extraversion were positive, while conscientiousness had negative effects.

Agreeableness only significantly and negatively impacted past 30-day alcohol use. Openness to experience had significant effects on all of the personality traits. However, cigarette use, alcohol use, and marijuana use had positive relationships, while favorite drug use had a negative relationship. Neuroticism had a positive and significant effect on all the types of drug use except alcohol use.

Tables 6.15-6.18 show the effect of personality on the odds of lifetime dependence to nicotine, alcohol, marijuana, and favorite drug. Neuroticism has positive and significant effects on all the type of dependence, while openness to experience does not have a significant effect on any type of dependence. Conscientiousness had negative and significant effects on all the types of dependence, except favorite drug. Agreeableness only had a positive and significant effect on marijuana dependence. Extraversion had two significant relationships, a positive relationship with alcohol dependence and a negative relationship with marijuana dependence.

6.2.2 Research Question 2

The second research question asks: Do the effects of personality traits (five-factor model) on drug use vary by the type of drug used?

Table 6.19 summarizes the specific relationships between the personality traits in the five-factor model and different types of drug use. This table indicates that the effects of personality traits do vary by the type of drug used. Neuroticism affects the last 12-month and past 30-day use of all drugs, except alcohol. However, it does have an effect on alcohol dependence. Extraversion has significant effects on every type of drug use, except nicotine dependence and favorite drug dependence. All of the significant relationships are positive, except marijuana dependence, which has a negative relationship with extraversion. Agreeableness has negative relationships with three types of 12-month drug use (alcohol, binge drinking, and marijuana) and 30-day alcohol use. However, agreeableness has a negative relationship with marijuana dependence. Conscientiousness has a negative and significant relationship with every type of drug, except favorite drug dependence. Lastly, openness to experience has significant relationships with every type of last 12-month and past 30-day use of drugs, except last 12-month favorite drug use. Although most of these relationships are positive, the relationship between openness to experience and past 30-day favorite drug use is negative. Additionally, openness to experience does not affect any type of drug dependence.

These results indicate that personality has differential effects based on the type of drug studied. However, they also suggest that personality has differing effects amongst different measures of the same drug. With alcohol use, neuroticism does not have an effect on last 12-month use or past 30-day use, but does have a significant effect on alcohol dependence. Binge drinking is also impacted by neuroticism. On the other hand, openness to experience has an effect on last 12-month use and past 30-day use, but not alcohol dependence. Additionally, agreeableness does not have a significant relationship with alcohol dependence, but has negative and significant effects on last 12-month alcohol use, past 30-day use, and last 12-month binge

drinking. Past 30-day cigarette use is impacted by extraversion, neuroticism, conscientiousness, and openness to experience, but nicotine dependence is only affected by neuroticism and conscientiousness.

The effects of personality on last 12-month marijuana use is quite similar to those of past 30-day marijuana use, except that agreeableness negatively impacts last 12-month use, but not past 30-day use. However, marijuana dependence is very different from both last 12-month and past 30-day use. First, openness to experience does not have a significant effect on marijuana dependence even though it has a positive effect on both last 12-month and past 30-day use. Second, extraversion has a negative relationship with marijuana dependence, but a positive relationship with last 12-month and past 30-day use. Third, agreeableness has a positive relationship with marijuana dependence, even though it has a negative relationship with last 12-month marijuana use. The effects of extraversion and agreeableness on marijuana dependence are of particular interest because marijuana dependence is the only type of drug use to show a negative relationship with extraversion and a positive relationship with agreeableness in this study and in the prior literature (see chapter 3 for prior literature on personality and marijuana use).

The results for favorite drug use also show differences between the measures. Favorite drug dependence is only impacted by neuroticism, last 12-month use is affected by extraversion, neuroticism, and conscientiousness, and past 30-day use has relationships with extraversion, neuroticism, conscientiousness, and openness to experience. It is important to note that past 30-day use of favorite drug has a negative relationship with openness to experience, and is the only drug measure to find a negative relationship with openness to experience.

6.2.3 Research Question 3

The third research question asks: Do the effects of personality traits (five-factor model) on drug use differ between continuous measures of personality and quartile measures?

Tables 6.7-6.18 show the impact of personality on various types of last 12-month drug use, past 30-day drug use, and drug dependence. These tables show the effect of each personality trait when it is measured as a continuous variable and the effects of individual quartiles. The purpose of the differing measures is to test whether the results vary between the continuous measure and the quartile measure, and also to see if the effects of personality differ based on the quartile an individual is in.

Last 12-Month Alcohol Use (Table 6.7): The relationship with extraversion is the same regardless of whether you are looking at the continuous measure or the quartiles because both indicate that as the level of personality trait increases, last 12-month use of alcohol increases. All of the quartiles were significantly different from each other. The relationship with neuroticism does differ between the continuous measure and quartile measures. The continuous measure is not significant, however, the quartiles show that individuals in the fourth quartile (highest level) are significantly more likely to use alcohol than those in the first quartile (lowest level). Agreeableness shows fairly consistent results between the continuous and quartile measures. However, there are no differences between the first and second quartiles or the third and fourth quartiles. This indicates that there are differences between individuals at the bottom and top end of agreeableness, but not at every level. The relationship with conscientious is also fairly consistent between the continuous and quartile measures. There are no differences between the second and third quartiles, suggesting that there are differences between individuals at the bottom and top end of conscientiousness, but not in the middle. Openness to experience also has

similar results between the continuous and quartile measures. The only dissimilarity is that there is no difference between the first and second quartile, suggesting that the individuals at the bottom of the openness to experience spectrum are similar, but after reaching a certain point in the middle, the groups are all different.

Last 12-Month Binge Drinking (Table 6.8): The relationship with extraversion is the same regardless of whether you are looking at the continuous measure or the quartiles because both indicate that as the level of personality trait increases, last 12-month binge drinking increases. All of the quartiles were significantly different from each other. Neuroticism shows fairly consistent results between the continuous and quartile measures. There are no differences between the second and third quartiles, suggesting that there are differences between individuals at the bottom and top end of neuroticism, but not in the middle. The relationship with agreeableness is also fairly consistent between the continuous and quartile measures. However, there are no differences between the third and fourth quartiles. This indicates that the individuals at the top of the agreeableness spectrum are similar, but not those below them. Conscientiousness has results that differ between the continuous and quartile measures. The continuous measure is significant, but the quartiles show that the only differences are between the fourth quartile and all the others. This suggests that individuals in the top percentiles of conscientiousness are less likely to binge drink than anyone else, but there is not a steady decrease as the personality levels increase as a significant continuous variable would suggest. The relationship with openness to experience also appears somewhat misleading when examining both the continuous and quartile measures. There are no differences between the first and second quartiles, the second and fourth quartiles, or the third and fourth quartiles. The quartile results are not indicative of a steady increase as the personality levels increase, which is suggested by the continuous variable.

Last 12-Month Marijuana Use (Table 6.9): The relationship with extraversion has fairly consistent results between the continuous and quartile measures. There are no differences between the second and third quartiles, suggesting that there are differences between individuals at the bottom and top end of extraversion, but not in the middle. Neuroticism shows the same results regardless of whether you are looking at the continuous measure or the quartiles because both indicate that as the level of personality trait increases, last 12-month binge drinking increases. All of the quartiles were significantly different from each other. The relationship with agreeableness shows differences between the continuous and quartile measures. Although the continuous measure is significant, there are no significant differences between any of the quartiles. Conscientiousness also reveals differences between the continuous and quartile measures. There are no differences between the second and third quartiles or the third and fourth quartiles. This indicates differences between individuals at the bottom and top of the conscientiousness spectrum, but not a steady decrease as the personality levels increase. The relationship with openness to experience is consistent between the continuous and quartile measures. The only variation is that there is no difference between the first and second quartile, suggesting that the individuals at the bottom of openness to experience are similar, but after reaching a certain point in the middle the groups are all different.

Last 12-Month Favorite Drug (Table 6.10): The relationship with extraversion is somewhat misleading when examining both the continuous and quartile measures. The continuous measure is significant, but the quartiles show that there is only a difference between the second and fourth quartile. Neuroticism shows fairly consistent results between the continuous and quartile measures. There are no differences between the second and third quartiles, suggesting that there are differences between individuals at the bottom and top

percentiles of neuroticism, but not in the middle. Agreeableness did not have a significant effect on last 12-month favorite drug use in either the continuous or quartile measures. The relationship with conscientiousness shows differences between the continuous and quartile measures. The continuous measure is significant, but the quartiles show that the only differences are between the fourth quartile and the first and second quartiles. This suggests that individuals at the top end of conscientiousness are less likely to binge drink than those below them, but there is not a steady decrease as the personality levels increase. Openness to experience did not have a significant effect on last 12-month favorite drug use in either the continuous or quartile measures.

Past 30-Day Cigarette Use (Table 6.11): The relationship with extraversion reveals consistent results between the continuous and quartile measures. The only discrepancy is that there is no difference between the first and second quartile, suggesting that the individuals at the bottom end of the extraversion spectrum are similar, but after reaching a certain point in the middle, the groups are all different. Neuroticism also shows consistent results between the continuous and quartile measures. However, there is no difference between the first and second quartile. Agreeableness did not have a significant effect on past 30-day cigarette use in either the continuous or quartile measures. The relationship with conscientiousness demonstrates fairly consistent results between the continuous and quartile measures. There are no differences between the third and fourth quartiles though. This indicates that the individuals at the top of the agreeableness range are similar, but not those below them. Openness to experience reveals differences between the continuous and quartile measures. The continuous measure is significant, but the quartiles show that the only differences are between the first and second quartiles and the first and third quartiles. This suggests that individuals at the bottom end of

conscientiousness are less likely to use cigarettes in the past 30-days than those above them, but there is not a steady increase as the personality levels increase.

Past 30-Day Alcohol Use (Table 6.12): The relationship with extraversion is the same regardless of whether you are looking at the continuous measure or the quartiles because both indicate that as the level of personality trait increases, past 30-day use of alcohol increases. All of the quartiles were significantly different from each other. Neuroticism did not have a significant effect on past 30-day cigarette use in either the continuous or quartile measures. The relationship with agreeableness shows differences between the continuous and quartile measures. The only quartile differences exist between the third and first quartiles and the third and second quartiles. This pattern does not show a steady decrease as the personality levels increase.

Conscientiousness also has differing results between the continuous and quartile measures. The continuous measure is significant, but the quartiles show that the only differences are between the first quartile and all the others. This suggests that individuals at the bottom end of conscientiousness are more likely to use alcohol in the past 30-days than anyone else, but there is not a steady decrease as the personality levels increase. The relationship with openness to experience shows similar results between the continuous and quartile measures. It is important to note however, that there are no differences between the first and second quartile.

Past 30-Day Marijuana Use (Table 6.13): The relationship with extraversion has fairly consistent results between the continuous and quartile measures. However, there are no differences between the second and third quartiles, suggesting that there are differences between individuals at the bottom and top end of extraversion, but not in the middle. Neuroticism has the same results regardless of whether you are looking at the continuous measure or the quartiles, because both indicate that as the level of personality trait increases, past 30-day use of marijuana

increases. All of the quartiles were significantly different from each other. Agreeableness did not have a significant effect on past 30-day cigarette use in either the continuous or quartile measures. The relationship with conscientiousness reveals differences between the continuous and quartile measures. The first quartile is significantly different than all the others and the second quartile is different from the first and third quartiles. This suggests that individuals low in conscientiousness are more likely to use marijuana in the past 30-days, but after reaching a certain level of conscientiousness the effect levels off. Openness to experience demonstrates consistent results between the continuous and quartile measures. The only dissimilarity is that there is no difference between the first and second quartile, suggesting that the individuals at the bottom of the openness to experience spectrum are similar, but after reaching a certain point in the middle, the groups are all different.

Past 30-Day Favorite Drug Use (Table 6.14): The relationship with extraversion shows differences between the continuous and quartile measures. Although the continuous measure is significant, there are no significant differences between any of the quartiles. Neuroticism also shows differences between the measures. The continuous measure is significant, but the quartiles show that the only differences are between the fourth quartile and all the others. This suggests that individuals at the top level of neuroticism are more likely to use their favorite drug in the past 30-days than anyone else, but there is not a steady increase as the personality levels increase. With agreeableness, we see that the continuous measure was not significant, but the quartiles show a significant difference between the second and third quartiles. Conscientiousness shows a significant continuous variable, and differences between the first quartile and the third and fourth quartiles and between the second and fourth quartile. This suggests that those at the bottom end of conscientiousness are more likely to use their favorite drug in the past 30-days

than individuals at the top end of conscientiousness, but there is not a steady decrease as the continuous variable indicates. The relationship with openness to experience is similar to conscientiousness. The first quartile is different than the third and fourth quartiles indicating that individuals low in conscientiousness are more likely to use their favorite drug in the past 30-days than those above them, but there is not a steady decrease as the continuous variables indicates.

Nicotine Dependence (Table 6.15): The results for extraversion demonstrate differences between the continuous and quartile measures. The continuous measure is not significant, however, there are significant differences between the first and second quartile, first and third quartiles, and third and fourth quartiles. Neuroticism shows fairly consistent results between the continuous and quartile measures. The only discrepancy is that there is no difference between the first and second quartiles, which suggests that the individuals at the bottom level of neuroticism are similar, but after reaching a certain point in the middle, the groups are all different. Agreeableness did not have a significant effect on nicotine dependence in either the continuous or quartile measures. The relationship with conscientiousness is fairly consistent between the continuous and quartile measures. The only distinction is that there are not differences between the second and fourth quartile and the third and fourth quartile. This indicates that individuals with a low level of conscientiousness have higher odds of nicotine dependence, but after reaching a certain percentile, the effect levels off. Openness to experience suggests that there are differences between the continuous and quartile measures. The continuous measure is not significant, but there is a significant difference between the first and third quartile.

Alcohol Dependence (Table 6.16): The results for extraversion indicate that there are differences between the continuous and quartile measures. The continuous measure is significant, but quartile differences only emerge at the fourth quartile. This suggests that

individuals highest in extraversion are significantly different from everyone below them, but there are no differences between the other levels of extraversion. Neuroticism shows fairly consistent results between both types of measures. It should be noted that there were not differences between the first and second quartiles, suggesting that individuals at the bottom level of neuroticism are similar, but after reaching a certain point in the middle, the groups are all different. Agreeableness did not have a significant effect on alcohol dependence in either the continuous or quartile measures. The results for conscientiousness indicate that there are differences between the continuous and quartile measures. Although the continuous measure is significant, quartile differences only appear for the first quartile. This implies that individuals with the lowest conscientiousness are significantly different from everyone above them, but there are no differences between the other levels of conscientiousness. Openness to experience did not have a significant effect on alcohol dependence in either the continuous or quartile measures.

Marijuana Dependence (Table 6.17): The results for extraversion reveal differences between the continuous and quartile measures. The continuous measure is significant, but quartile differences only emerge at the fourth quartile. This suggests that individuals highest in extraversion are significantly different from everyone below them, but there are no differences between the other levels of extraversion. Neuroticism shows fairly consistent results between the two types of measures. The only discrepancy is that there is no difference between the second and third quartiles. This suggests that individuals high in neuroticism are different from those with low neuroticism, but individuals in the middle are similar. The results for agreeableness show differences between the continuous and quartile measures. There are no differences between the first and second quartiles, the second and third quartiles, or the third and fourth quartiles. This indicates that the main differences appear between the top and bottom levels of

agreeableness. Conscientiousness also reveals differences between the two types of measures. The continuous measure is significant, but the only significant difference in the quartiles is between the first and fourth quartile. Openness to experience did not have a significant effect on marijuana dependence in either the continuous or quartile measures.

Favorite Drug Dependence (Table 6.18): The only personality factor that exerted a significant effect on favorite drug dependence was neuroticism. The continuous measure is significant, but the only significant difference in the quartiles is between the second and fourth quartile.

6.3 Results: Personality and Criminal Outcomes

The analyses presented in this section use the analytical techniques outlined in chapter 5 (METHODS) in order to answer the following three research questions:

4. Is there a relationship between personality traits (five-factor model) and specific forms of crime?
5. Do the effects of personality traits (five-factor model) on criminal outcomes vary by the type of crime committed?
6. Do the effects of personality traits (five-factor model) on criminal outcomes differ between continuous measures of personality and quartile measures?

6.3.1 Research Question 4

The fourth research question asks: Is there a relationship between personality traits (five-factor model) and specific forms of crime?

Tables 6.20 and 6.21 investigate the relationship between personality and two general measures of crime, arrest and incarceration. The results show that extraversion and neuroticism have positive and significant effects on both arrest and incarceration, while agreeableness has

negative and significant effects on both outcomes. Openness to experience has a positive and significant effect on arrest, but not incarceration. Conscientiousness did not have significant effects on either outcome.

Tables 6.22-6.24 examine the effect of personality on three types of violent crime: robbery, fighting, and serious fighting. The results indicate that extraversion and neuroticism have positive and significant effects on all three types of violent crime, while agreeableness has negative and significant effects on the crimes. Conscientiousness has a negative and significant relationship with fighting and serious fighting, but not robbery. Openness to experience has a positive and significant relationship with serious fighting, but not robbery or fighting.

Tables 6.25-6.29 show the effects of personality on five types of property crime: burglary, theft over fifty dollars, theft under fifty dollars, credit card fraud, and check fraud. Neuroticism has positive and significant effects on all five types of property crime. Agreeableness has negative and significant effects on theft over fifty dollars and theft under fifty dollars, while openness to experience has positive and significant effects on these property crimes. Openness to experience and agreeableness do not have significant effects on any other types of property crime though. Conscientiousness has negative and significant effects on theft under fifty dollars, credit card fraud, and check fraud. Extraversion has positive and significant effects on theft over fifty dollars and check fraud.

Tables 6.30-6.32 examine the impact of personality on three types of public order crime: vandalism, drug sale, and dealing in stolen property. All five of the personality traits have significant effects on all of the public order crimes. Extraversion, neuroticism, and openness to experience have positive relationships with the public order crimes, while agreeableness and conscientiousness have negative relationships.

6.3.2 Research Question 5

The fifth research question asks: Do the effects of personality traits (five-factor model) on criminal outcomes vary by the type of crime committed?

Table 6.33 summarizes the specific relationships between the personality traits in the five-factor model and different types of criminal outcomes. This table indicates that the effects of personality traits do vary by the type of crime measured. Extraversion has a significant and positive effect on all of the types of crime except burglary, theft under fifty dollars, and credit card fraud. Neuroticism showed a positive and significant relationship with every type of criminal outcome. Agreeableness has significant and negative effects on all the crime outcomes except burglary, credit card fraud, and check fraud. Conscientiousness showed significant and negative relationships with all of the crimes measured except arrest, incarceration, robbery, burglary, and theft over fifty dollars. Openness to experience has the least number of significant relationships with criminal outcomes. It has positive relationships with all the crime types except incarceration, robbery, fighting, burglary, credit card fraud, and check fraud.

As with drug use the results indicate that the effect of personality does differ based on the type of crime. However, the results also suggest that personality has different effects on specific offenses in the same crime category (i.e. violent crimes, property crimes, public order crimes). For the general measures of crime, arrest and incarceration, the results are fairly similar. The only difference is that openness to experience affects arrest, but not incarceration.

With violent crime, serious fighting is impacted by all five of the personality traits, but this is not the case for the other types of violent crime. Fighting is not affected by openness to experience, but is affected by the other personality traits. Robbery on the other hand, only has a relationship with extraversion, neuroticism, and agreeableness.

There are quite a few differences with the types of property crime. First, burglary is only affected by neuroticism. This is the only type of property crime that has only one significant relationship with personality traits. Second, although theft over fifty dollars and theft under fifty dollars seem like similar crimes, they have different results. For example, extraversion affects theft over fifty dollars, but not theft under fifty dollars. Additionally, conscientiousness has an effect on theft under fifty dollars, but not theft over fifty dollars. Third, credit card fraud and check fraud have different relationships despite being similar types of crime. The main difference here is that extraversion affects check fraud, but not credit card fraud. Unlike the other crime categories, all three types of public order crimes (vandalism, drug sale, and dealing in stolen property) are affected by all five of the personality traits.

6.3.3 Research Question 6

The sixth research question asks: Do the effects of personality traits (five-factor model) on criminal outcomes differ between continuous measures of personality and quartile measures?

Tables 6.20-6.32 show the impact of personality on various types of general crime measures, violent crimes, property crimes, and public order crimes. These tables show the effect of each personality trait measured as a continuous variable and the effects of individual quartiles. The purpose of the differing measures is to test whether the results vary between the continuous measure and the quartile measure, and also to see if the effects of personality differ based on the quartile an individual is in.

Arrest (Table 6.20): Extraversion shows the same results for both the continuous and quartile measures. Both indicate that as extraversion increases, the odds of ever having been arrested increase, and all of the quartiles were significantly different from each other. The results for neuroticism are fairly consistent between the continuous and quartile measures. The only

dissimilarity is that there is no difference between the first and second quartiles, which suggests that the individuals at the bottom level of neuroticism are similar, but after reaching a certain point in the middle, the groups are all different. Agreeableness shows somewhat different results between the continuous and quartile measures. The continuous measure is significant, but the only quartile differences emerge at the first quartile with the first quartile being different from the second and fourth. Conscientiousness did not have a significant effect on arrest in either the continuous or quartile measures. The results for openness to experience also reveal differences between the continuous and quartile measures. Although the continuous measure is significant, the only quartile differences are between the first and third quartiles and the second and third quartiles.

Incarceration (Table 6.21): The results for extraversion are fairly consistent between the continuous and quartile measures. The only discrepancy is that there is no difference between the first and second quartile, which indicates that the individuals at the bottom level of extraversion are similar, but after reaching a certain point in the middle, the groups are all different. Neuroticism shows the same results as extraversion (i.e. no differences between the first and second quartiles, but similar results between the continuous and quartile measures otherwise). The results for agreeableness reveal differences between the continuous and quartile measures. The continuous measure is significant, but the only quartile differences are between the first and second quartiles and the first and third quartile. Conscientiousness and openness to experience did not have significant effects on incarceration in either the continuous or quartile measures.

Robbery (Table 6.22): The results for extraversion show differences between the continuous and quartile measures. The continuous measure is significant, but there are no significant differences between any of the quartiles. Neuroticism demonstrates fairly consistent

results between the continuous and quartile measures. However, there is no difference between the first and second quartiles, which suggests that the individuals at the bottom level of neuroticism are similar, but after reaching a certain point in the middle, the groups are all different. The results for agreeableness also reveal differences between the continuous and quartile measures. The continuous measure is significant, but the only quartile difference is between the first and second quartiles. Conscientiousness and openness to experience did not have significant effects on robbery in either the continuous or quartile measures.

Fighting (Table 6.23): Extraversion shows fairly consistent results between the continuous and quartile measures. The only distinction is that there is no difference between the second and third quartile, indicating that individuals high in extraversion are different from those low in extraversion, but the people in the middle are not different from one another. The results for neuroticism are also fairly consistent between the continuous and quartile measures. The only dissimilarity with neuroticism is that there is no difference between the first and second quartiles, which suggests that the individuals at the bottom level of neuroticism are similar, but after reaching a certain point in the middle, the groups are all different. Agreeableness does appear to reveal some differences between the continuous and quartile measures. While the continuous measure is significant, quartile differences only emerge for the first quartile. This indicates that individuals with the lowest levels of agreeableness are more likely to engage in fighting than everyone above them, but there are no differences amongst the other groups. Conscientiousness demonstrates the same pattern as agreeableness (i.e. only differences for the first quartile). Openness to experience did not have significant effects on fighting in either the continuous or quartile measures.

Serious Fighting (Table 6.24): The results for extraversion are fairly consistent between the continuous and quartile measures. The only variation is that there is no difference between the second and third quartile, indicating that individuals high in extraversion are different from those low in extraversion, but the people in the middle are not different from one another. Neuroticism also shows fairly consistent results between the continuous and quartile measures. The only distinction with neuroticism is that there is no difference between the first and second quartiles, which suggests that the individuals at the bottom level of neuroticism are similar, but after reaching a certain point in the middle, the groups are all different. The results for agreeableness suggest some differences between the continuous and quartile measures. Although the continuous measure is significant, quartile differences only emerge for the first quartile. This indicates that individuals with the lowest levels of agreeableness are more likely to engage in fighting than everyone above them, but there are no differences amongst the other groups. Conscientiousness also shows different results between the continuous and quartile measures. There are quartile differences between the first and third quartiles, the first and fourth quartile, and the second and third quartile. Additionally, the results for openness to experience demonstrate differences between the two types of measures because the continuous measure is significant, but there are no quartile differences.

Burglary (Table 6.25): Neuroticism is the only personality trait that exerted a significant effect on burglary. The continuous measure is somewhat different from the quartile measures because the only significant differences are between the first and fourth quartile and the second and fourth quartile. It should be noted that though the continuous measure for conscientiousness was not significant, there was a significant difference between the first and fourth quartile.

Theft Over Fifty Dollars (Table 6.26): The results for extraversion are somewhat different between the continuous and quartile measures. The continuous measure is significant, but the only quartile differences are between the first and fourth quartiles, the second and third quartiles, and the second and fourth quartiles. Neuroticism also reveals some differences between the continuous and quartile measures. With neuroticism the continuous measure is significant, the fourth quartile is different from all the other groups, and the first and third quartile are different. This suggests that individuals higher in neuroticism are different than those below them, but there are not differences amongst those low in neuroticism. The results for agreeableness show differences between the two types of measures as well. Although the continuous measure is significant, the only quartile difference is between the first and fourth quartiles. Conscientiousness did not have significant effects on theft over fifty dollars in either the continuous or quartile measures. Openness to experience also suggests differences between the continuous and quartile measures. The continuous measure is significant, but the quartile differences only emerge for the first quartile. This indicates that individuals low in openness to experience are less likely to steal more than fifty dollars than those in the third or fourth quartile, but there is not a steady increase, as the continuous measure would suggest.

Theft Under Fifty Dollars (Table 6.27): Extraversion reveals differences between the continuous and quartile measures. The continuous measure is not significant, but the quartiles show that there are differences between the first and fourth quartiles and the second and fourth quartiles. The results for neuroticism show that the continuous measure is significant, the fourth quartile is different from all of the others, and that the first and third quartiles are different. Agreeableness also has a significant continuous measure, but differences only between the first and second quartiles and the first and fourth quartiles. The results for conscientiousness show

differences between the continuous and quartile measures. Although the continuous measure is significant, quartile differences only emerge for the first quartile (and the second and fourth quartile). This indicates that individuals with the lowest levels of conscientiousness are more likely to steal less than fifty dollars than everyone above them, but there are not really differences amongst the other groups. On the other hand openness to experience only shows quartile differences at the highest level (fourth quartile).

Credit Card Fraud (Table 6.28): Neuroticism and conscientiousness were the only personality traits that had significant effects on credit card fraud, and both show differences between the continuous and quartile measures. With neuroticism the continuous measure is significant, but quartile differences only emerge for the fourth quartile. This indicates that individuals with the highest level of neuroticism are more likely to engage in credit card fraud than everyone below them, but there are no differences amongst the other groups. Conscientiousness only shows quartile differences between the first and third quartiles and the first and fourth quartiles.

Check Fraud (Table 6.29): The results for extraversion indicate that there are only quartile differences for the fourth quartile. This means that very extraverted individuals are more likely to commit check fraud than those below them, but there are not differences amongst the other groups. These results are somewhat different to what the significant continuous variable would suggest. Neuroticism shows that the first and second quartiles are different than the third and fourth quartiles, which is again somewhat different than what the significant continuous variable would suggest. The results for conscientiousness indicate that there are differences between the continuous and quartile measures. Although the continuous measure is significant, quartile differences only emerge for the first quartile. This implies that individuals with the

lowest levels of conscientiousness are more likely to commit check fraud than everyone above them, but there are no differences amongst the other groups. Agreeableness and openness to experience did not have significant effects on check fraud in either the continuous or quartile measures.

Vandalism (Table 6.30): The results for extraversion show that the continuous measure is significant, the fourth quartile is significantly different than all of the other quartiles, and that the first and third quartiles are different. Neuroticism has fairly consistent results between the continuous and quartile measures. The only dissimilarity is that there is no difference between the first and second quartiles, which indicates that the individuals at the bottom level of neuroticism are similar, but after reaching a certain point in the middle, the groups are all different. The results for agreeableness reveal differences between the continuous and quartile measures. Although the continuous measure is significant, the only quartile difference is between the first and second quartile. Conscientiousness demonstrates that there are only quartile differences for the first quartile, suggesting that individuals with the lowest levels of conscientiousness are more likely to engage in vandalism than the groups above them, but there are no differences amongst the other groups. The results for openness to experience illustrate that there are differences between the continuous and quartile measures. The continuous measure is significant, but the only quartile difference is between the first and fourth quartiles.

Drug Sale (Table 6.31): The results for extraversion show that the continuous measure is significant, the fourth quartile is significantly different from the first and second quartiles, and that the first and third quartile are different. Neuroticism has fairly consistent results between the continuous and quartile measures. The only divergence is that there is no difference between the first and second quartiles, which indicates that the individuals at the bottom level of neuroticism

are similar, but after reaching a certain point in the middle, the groups are all different. The results for agreeableness reveal differences between the continuous and quartile measures. Although the continuous measure is significant, there are no significant quartile differences. Conscientiousness appears to have fairly consistent results between the continuous and quartile measures. The only distinction is that there is no difference between the third and fourth quartiles, indicating that individuals with high levels of conscientiousness are similar, but not those below them. The results for openness to experience show that the continuous measure is significant and that the first and second quartiles are different than the third and fourth quartiles.

Dealing in Stolen Property (Table 6.32): With extraversion it appears that quartile differences only emerge for the first quartile. This implies that individuals with the lowest levels of extraversion are more likely to deal in stolen property than everyone above them, but there are no differences amongst the other groups. Neuroticism has fairly consistent results between the continuous and quartile measures. The only divergence is that there is no difference between the first and second quartiles, which indicates that the individuals at the bottom level of neuroticism are similar, but after reaching a certain point in the middle, the groups are all different. The results for agreeableness show differences between the continuous and quartile measures. Although the continuous measure is significant, quartile differences only emerge for the first quartile (and the second and fourth quartile). This indicates that individuals with the lowest levels of agreeableness are more likely to deal in stolen property than the groups above them, but there are not really differences amongst the other groups. Conscientiousness shows the same pattern as agreeableness. The results for openness to experience suggest that the first and second quartiles are significantly different than the third and fourth quartiles.

Table 6.1 Descriptive Statistics for Personality Variables

	Mean	Standard Deviation	Min.	Max.
Full Variable				
Extraversion	13.219	3.058	4	20
Neuroticism	10.450	2.744	4	20
Agreeableness	15.236	2.416	4	20
Conscientiousness	14.642	2.699	4	20
Openness	14.494	2.457	4	20
Quartiles				
Extraversion	2.446	1.133	1	4
Neuroticism	2.406	1.105	1	4
Agreeableness	2.095	1.022	1	4
Conscientiousness	2.329	1.138	1	4
Openness	2.351	1.127	1	4

Table 6.2 Descriptive Statistics for Drug Use Variables

	Mean	Standard Deviation	Min.	Max.
Last 12 Month Alcohol Use	2.234	1.810	0	6
Last 12 Month Binge Drinking	1.129	1.525	0	6
Last 12 Month Marijuana Use	0.743	1.677	0	6
Last 12 Month Favorite Drug Use	1.314	1.776	0	6
Past 30 Days Cigarette Use	7.916	12.536	0	30
Past 30 Days Alcohol Use	1.657	1.773	0	6
Past 30 Days Marijuana Use	0.608	1.599	0	6
Past 30 Days Favorite Drug Use	1.708	1.952	0	6
Nicotine Dependence	0.221	0.415	0	1
Alcohol Dependence	0.325	0.468	0	1
Marijuana Dependence	0.056	0.230	0	1
Favorite Drug Dependence	0.606	0.489	0	1

Table 6.3 Descriptive Statistics for Criminal Outcome Variables

	Mean	Standard Deviation	Min.	Max.
Arrest	0.282	0.450	0	1
Incarceration	0.153	0.360	0	1
Robbery	0.008	0.091	0	1
Fighting	0.032	0.175	0	1
Serious Fighting	0.052	0.221	0	1
Burglary	0.006	0.080	0	1
Theft Over 50 Dollars	0.018	0.131	0	1
Theft Under 50 Dollars	0.040	0.195	0	1
Check Fraud	0.019	0.138	0	1
Credit Card Fraud	0.007	0.081	0	1
Vandalism	0.041	0.198	0	1
Drug Sale	0.042	0.201	0	1
Dealing in Stolen Property	0.027	0.162	0	1

Table 6.4 Descriptive Statistics for Control Variables

	Mean	Standard Deviation	Min.	Max.
Age	16.165	1.723	11.56	21.38
Male	0.467	0.499	0	1
White	0.700	0.458	0	1
Black	0.229	0.420	0	1
Married	0.497	0.500	0	1
College Degree	0.316	0.465	0	1
Income	62450.89	38617.14	2500	150000

Table 6.5 Bivariate Correlations (Personality and Drug Use)

	1	2	3	4	5	6	7	8	9	10	11	12
1	1.00	-0.11***	0.27***	0.09***	0.22***	0.16***	0.15***	0.06***	0.02***	0.05***	0.14***	0.06***
2		1.00	-0.07***	-0.12***	-0.15***	-0.07***	-0.01	0.06***	0.13***	0.10***	-0.07***	0.06***
3			1.00	0.17***	0.29***	0.015	-0.05***	-0.04***	-0.03	-0.06***	0.00	-0.04***
4				1.00	0.05***	-0.03***	-0.06***	-0.07***	-0.07***	-0.10***	-0.03***	-0.06***
5					1.00	0.16***	0.09***	0.10***	-0.03	-0.01	0.14***	0.08***
6						1.00	0.72***	0.21***	0.03	0.10***	0.85***	0.17***
7							1.00	0.24***	0.09***	0.20***	0.69***	0.20***
8								1.00	0.16***	0.26***	0.21***	0.92***
9									1.00	0.08***	0.03	0.12***
10										1.00	0.12***	0.26***
11											1.00	0.19***
12												1.00

Table 6.5 - Continued

	13	14	15	16	17	18	19	20	21	22	23	24
1	0.01	-0.05***	0.03**	-0.05***	-0.01	-0.04***	-0.04***	0.06***	-0.05***	-0.02**	0.03***	0.10***
2	0.13***	0.11***	0.13***	0.07***	0.08***	0.01	-0.20***	-0.03***	0.04***	-0.02*	-0.15***	-0.14***
3	-0.03	-0.07***	-0.03*	0.01	0.02	-0.03***	-0.26***	0.03***	-0.02*	0.02*	0.19***	0.08***
4	-0.01***	-0.10***	-0.09***	-0.06***	-0.03	0.02**	-0.09***	-0.04***	0.05***	0.03***	0.07***	0.08***
5	-0.08***	-0.04***	0.02	0.03*	0.00	-0.07***	0.12***	0.01	0.01	-0.10***	0.17***	0.05***
6	-0.10***	-0.05***	0.11***	-0.02	-0.07**	-0.06***	0.20***	0.12***	-0.12***	-0.13***	0.14***	0.16***
7	-0.05	0.01	0.21***	0.01	-0.04	-0.06***	0.20***	0.13***	-0.13***	-0.14***	-0.00	0.05***
8	-0.01	0.10***	0.10***	-0.05***	-0.02	-0.06***	0.13***	-0.01	0.03***	-0.15***	-0.11***	-0.09***
9	0.65***	0.03	0.07**	-0.01	0.02	-0.04*	0.01	-0.03	0.06***	-0.10***	-0.09***	-0.07***
10	0.13***	0.28***	0.11***	-0.02	0.02	-0.04***	0.08***	0.09***	-0.07***	-0.06***	-0.25***	-0.15***
11	-0.06**	-0.03**	0.12***	-0.00	-0.06**	-0.05***	0.209***	0.10***	-0.10***	-0.14***	0.12***	0.13***
12	0.02	0.10***	0.09***	-0.05***	-0.03	-0.05***	0.12***	-0.01	0.03***	-0.14***	-0.11***	-0.10***
13	1.00	0.08**	0.14***	0.05	0.05	0.00	-0.03	0.03	-0.01	0.03	-0.12***	-0.10***
14		1.00	0.12***	0.06***	0.13***	-0.02	0.07***	0.08***	-0.05***	-0.00	-0.16***	-0.12***
15			1.00	0.15***	0.18***	-0.05***	0.09***	0.03*	-0.04***	-0.10***	-0.08***	-0.05***
16				1.00	0.12***	0.01	0.06***	0.04**	-0.04**	-0.04**	0.00	-0.01
17					1.00	0.02	-0.06*	0.03	-0.03	-0.10	-0.09***	-0.11***
18						1.00	0.05***	-0.01	-0.03***	0.18***	-0.03***	0.07***
19							1.00	0.02**	-0.04***	-0.08***	-0.08***	0.06***
20								1.00	-0.83***	0.19***	0.01	0.10***
21									1.00	-0.19***	-0.05***	-0.18***
22										1.00	-0.03***	0.14***
23											1.00	0.29***
24												1.00

Notes: * p≤ 0.05, ** p≤ 0.01, *** p≤ 0.001; The numbers correspond to the following variables in order: Extraversion (1), Neuroticism, Agreeableness, Conscientiousness, Openness to Experience, Alcohol Use (12-Months), Binge Drinking (12-Months), Marijuana Use (12-Months), Favorite Drug Use (12-Months), Cigarette Use (30-Days), Alcohol Use (30-Days), Marijuana Use (30-Days), Favorite Drug Use (30-Days), Nicotine Dependence, Alcohol Dependence, Marijuana Dependence, Favorite Drug Dependence, Age, Male, White, Black, Married, College Degree, Income (24).

Table 6.6 Bivariate Correlations (Personality and Criminal Outcomes)

	1	2	3	4	5	6	7	8	9	10	11	12
1	1.00	-0.11***	0.27***	0.09***	0.22***	-0.00	0.03***	0.03***	0.00	0.02*	0.01	-0.01
2		1.00	-0.07***	-0.12***	-0.15***	0.06***	0.05***	0.07***	0.04***	0.05***	0.03***	0.05***
3			1.00	0.17***	0.29***	-0.05***	-0.06***	-0.08***	-0.03***	-0.03***	-0.03***	-0.02**
4				1.00	0.05***	-0.02**	-0.04***	-0.05***	-0.02**	-0.03***	-0.07***	-0.04***
5					1.00	0.01	0.01	0.02*	0.00	0.02**	0.06***	-0.00
6						1.00	0.23***	0.24***	0.18***	0.15***	0.11***	0.13***
7							1.00	0.49***	0.10***	0.11***	0.08***	0.08***
8								1.00	0.12***	0.11***	0.10***	0.09***
9									1.00	0.42***	0.27***	0.22***
10										1.00	0.41***	0.20***
11											1.00	0.14***
12												1.00

Table 6.6 - Continued

	13	14	15	16	17	18	19	20	21	22	23	24	25
1	0.02**	0.02**	0.02**	0.02*	0.06***	0.03***	-0.04***	-0.04***	0.06***	-0.05***	-0.02**	0.03***	0.10***
2	0.05***	0.09***	0.06***	0.04***	0.04***	0.04***	0.01	-0.20***	-0.03***	0.04***	-0.12*	-0.15***	-0.14***
3	-0.01	-0.05***	-0.06***	-0.07***	-0.11***	-0.11***	-0.03***	-0.26***	0.03***	-0.02*	0.02*	0.19***	0.08***
4	-0.04***	-0.07***	-0.08***	-0.06***	-0.04***	-0.05***	0.02**	-0.09***	-0.04***	0.05***	0.03***	0.07***	0.08***
5	-0.00	0.03***	0.03***	0.02**	0.03***	-0.00	-0.07***	0.12***	0.01	0.01	-0.10***	0.17***	0.05***
6	0.08***	0.18***	0.14***	0.17***	0.06***	0.07***	-0.02*	0.05***	-0.03***	0.04***	-0.03***	-0.04***	-0.04***
7	0.06***	0.16***	0.17***	0.19***	0.16***	0.15***	-0.04***	0.12***	-0.04***	0.04***	-0.09***	-0.07***	-0.04***
8	0.08***	0.22***	0.19***	0.19***	0.20***	0.19***	-0.04***	0.13***	-0.03***	0.04***	-0.08***	-0.10***	-0.07***
9	0.13***	0.16***	0.17***	0.22***	0.08***	0.08***	-0.01	0.03***	-0.02**	0.03***	-0.04***	-0.04***	-0.03***
10	0.12***	0.18***	0.19***	0.30***	0.10***	0.10***	-0.01	0.05***	0.00	-0.00	-0.05***	-0.04***	-0.03***
11	0.10***	0.23***	0.16***	0.28***	0.10***	0.08***	-0.05***	0.08***	0.01	-0.01	-0.07***	-0.01	-0.03***
12	0.14***	0.11***	0.13***	0.18***	0.07***	0.07***	-0.01	0.02**	-0.01	0.01	-0.03***	-0.04***	-0.03**
13	1.00	0.08***	0.08***	0.11***	0.05***	0.05***	-0.02*	-0.02**	-0.03***	0.04***	-0.03***	-0.04***	-0.03***
14		1.00	0.18***	0.21***	0.14***	0.13***	-0.06***	0.09***	-0.02**	0.02*	-0.07***	-0.04***	-0.05***
15			1.00	0.25***	0.19***	0.20***	-0.05***	0.11***	-0.02**	0.03***	-0.09***	-0.09***	-0.07***
16				1.00	0.14***	0.15***	-0.04***	0.09***	-0.04***	0.05***	-0.07***	-0.06***	-0.04***
17					1.00	0.68***	-0.00	0.26***	-0.03***	0.06***	-0.12***	-0.21***	-0.11***
18						1.00	0.01	0.22***	-0.03***	0.06***	-0.10***	-0.20***	-0.12***
19							1.00	0.05***	-0.01	-0.03***	0.18***	-0.03***	0.07***
20								1.00	0.02**	-0.04***	-0.08***	-0.08***	0.06***
21									1.00	-0.83***	0.19***	0.01	0.10***
22										1.00	-0.19	-0.05***	-0.18***
23											1.00	-0.03***	0.14***
24												1.00	0.29***
25													1.00

Notes: * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$; The numbers correspond to the following variables in order: Extraversion (1), Neuroticism, Agreeableness, Conscientiousness, Openness to Experience, Robbery, Fighting, Serious Fighting, Burglary, Theft Over \$50, Theft Under \$50, Credit Card Fraud, Check Fraud, Vandalism, Drug Sale, Dealing in Stolen Property, Arrest, Incarceration, Age, Male, White, Black, Married, College Degree, Income (25).

Table 6.7 The Effect of Personality on Last 12-Month Alcohol Use

	Full Variable Coeff./Beta	Reference Group Quartile 1 Coeff./Beta	Reference Group Quartile 2 Coeff./Beta	Reference Group Quartile 3 Coeff./Beta	Reference Group Quartile 4 Coeff./Beta
Extraversion	0.079/0.134*** (0.005)				
Quartile 1			-0.249/-0.062*** (0.039)	-0.412/-0.103*** (0.039)	-0.600/-0.149*** (0.041)
Quartile 2		0.249/0.059*** (0.039)		-0.162/-0.038*** (0.040)	-0.350/-0.083*** (0.042)
Quartile 3		0.412/0.099*** (0.039)	0.162/0.039*** (0.040)		-0.188/-0.045*** (0.041)
Quartile 4		0.600/0.143*** (0.041)	0.350/0.084*** (0.042)	0.188/0.049*** (0.041)	
Neuroticism	0.010/0.016 (0.005)				
Quartile 1			-0.039/-0.010 (0.038)	-0.023/-0.006 (0.040)	-0.096/-0.024* (0.042)
Quartile 2		0.039/0.010 (0.038)		0.016/0.004 (0.039)	-0.057/-0.014 (0.041)
Quartile 3		0.023/0.005 (0.040)	-0.016/-0.004 (0.039)		-0.073/-0.017 (0.041)
Quartile 4		0.096/0.022* (0.042)	0.057/0.013 (0.041)	0.073/0.017 (0.053)	
Agreeableness	-0.018/-0.024** (0.007)				
Quartile 1			0.001/0.000 (0.034)	0.098/0.025* (0.048)	0.103/0.027* (0.049)
Quartile 2		-0.001/-0.000 (0.034)		0.097/0.025* (0.045)	0.102/0.028* (0.045)
Quartile 3		-0.098/-0.019* (0.048)	-0.097/-0.018* (0.045)		0.005/0.001 (0.053)
Quartile 4		-0.103/-0.021* (0.049)	-0.102/-0.020* (0.045)	-0.005/-0.001 (0.053)	

Table 6.7 - Continued

	Full Variable Coeff./Beta	Quartile 1 Coeff./Beta	Quartile 2 Coeff./Beta	Quartile 3 Coeff./Beta	Quartile 4 Coeff./Beta
Conscientiousness	-0.026/-0.039*** (0.005)				
Quartile 1			0.092/0.024** (0.037)	0.095/0.025* (0.042)	0.187/0.048*** (0.039)
Quartile 2		-0.092/-0.023** (0.037)		0.003/0.001 (0.042)	0.095/0.024* (0.040)
Quartile 3		-0.095/-0.020* (0.042)	-0.003/-0.001 (0.042)		0.093/0.020* (0.044)
Quartile 4		-0.187/-0.044*** (0.039)	-0.095/-0.022* (0.040)	-0.093/-0.022* (0.044)	
Openness	0.0056/0.076*** (0.006)				
Quartile 1			-0.075/-0.020 (0.042)	-0.274/-0.072*** (0.036)	-0.366/-0.096*** (0.044)
Quartile 2		0.075/0.016 (0.042)		-0.199/-0.042*** (0.042)	-0.291/-0.061*** (0.049)
Quartile 3		0.274/0.071*** (0.036)	0.199/0.051*** (0.042)		-0.092/-0.024* (0.042)
Quartile 4		0.366/0.080*** (0.044)	0.291/0.064*** (0.049)	0.092/0.020* (0.042)	

Notes: n = 14,488; The covariates have been standardized by: Age (-0.045/-0.043***), Male (0.653/0.181***), White (0.426/0.108***), Black (-0.081/-0.019), Married (-0.485/-0.135***), College Degree (0.397/0.104***), and Income (0.000/0.116***). The coefficients and betas are listed next to the variables.
* p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.8 The Effect of Personality on Last 12-Month Binge Drinking

	Full Variable Coeff./Beta	Reference Group Quartile 1 Coeff./Beta	Reference Group Quartile 2 Coeff./Beta	Reference Group Quartile 3 Coeff./Beta	Reference Group Quartile 4 Coeff./Beta
Extraversion	0.076/0.153*** (0.004)				
Quartile 1			-0.209/-0.062*** (0.033)	-0.334/-0.099*** (0.033)	-0.587/-0.174*** (0.035)
Quartile 2		0.209/0.059*** (0.033)		-0.125/-0.035*** (0.034)	-0.378/-0.106 (0.036)
Quartile 3		0.334/0.095*** (0.033)	0.125/0.036*** (0.034)		-0.253/-0.072*** (0.035)
Quartile 4		0.587/0.166*** (0.035)	0.378/0.107*** (0.036)	0.253/0.072*** (0.035)	
Neuroticism	0.026/0.047*** (0.005)				
Quartile 1			-0.090/-0.027** (0.032)	-0.125/-0.037*** (0.034)	-0.206/-0.061*** (0.036)
Quartile 2		0.090/0.026** (0.032)		-0.035/-0.010 (0.034)	-0.116/-0.034*** (0.035)
Quartile 3		0.125/0.035*** (0.040)	0.035/0.010 (0.036)		-0.081/-0.023* (0.036)
Quartile 4		0.206/0.056*** (0.036)	0.116/0.031*** (0.035)	0.081/0.022* (0.036)	
Agreeableness	-0.032/-0.051*** (0.006)				
Quartile 1			0.075/0.023** (0.029)	0.158/0.049*** (0.041)	0.162/0.050*** (0.042)
Quartile 2		-0.075/-0.024** (0.029)		0.082/0.027* (0.036)	0.087/0.028* (0.038)
Quartile 3		-0.158/-0.035*** (0.041)	-0.082/-0.018* (0.038)		0.005/0.001 (0.045)
Quartile 4		-0.162/-0.038*** (0.042)	-0.087/-0.021* (0.038)	-0.005/-0.001 (0.045)	

Table 6.8 - Continued

	Full Variable Coeff./Beta	Reference Group Quartile 1 Coeff./Beta	Reference Group Quartile 2 Coeff./Beta	Reference Group Quartile 3 Coeff./Beta	Reference Group Quartile 4 Coeff./Beta
Conscientiousness	-0.021/-0.037*** (0.004)				
Quartile 1			0.024/0.007 (0.031)	0.042/0.013 (0.035)	0.135/0.041*** (0.034)
Quartile 2		-0.024/-0.007 (0.031)		0.017/0.005 (0.036)	0.111/0.034*** (0.034)
Quartile 3		-0.042/-0.011 (0.035)	-0.017/-0.004 (0.036)		0.093/0.024** (0.093)
Quartile 4		-0.135/-0.038*** (0.034)	-0.111/-0.031*** (0.034)	-0.093/-0.026* (0.038)	
Openness	0.023/0.037*** (0.005)				
Quartile 1			-0.058/-0.018 (0.036)	-0.135/-0.042*** (0.031)	-0.144/-0.045*** (0.038)
Quartile 2		0.058/0.014 (0.036)		-0.077/-0.019* (0.036)	-0.086/-0.021* (0.042)
Quartile 3		0.135/0.041*** (0.031)	0.077/0.024* (0.036)		-0.009/-0.003 (0.036)
Quartile 4		0.144/0.037*** (0.038)	0.086/0.022 (0.042)	0.009/0.002 (0.036)	

Notes: n = 14,456; The covariates have been standardized by: Age (-0.034/-0.039***), Male (0.541/0.179***), White (0.262/0.079***), Black (-0.299/-0.082***), Married (-0.445/-0.147***), College Degree (-0.003/-0.001), and Income (0.000/0.038***). The coefficients and betas are listed next to the variables. * p≤ 0.05, ** p≤ 0.01, *** p≤ 0.001

Table 6.9 The Effect of Personality on Last 12-Month Marijuana Use

	Full Variable Coeff./Beta	Reference Group Quartile 1 Coeff./Beta	Reference Group Quartile 2 Coeff./Beta	Reference Group Quartile 3 Coeff./Beta	Reference Group Quartile 4 Coeff./Beta
Extraversion	0.036/0.067*** (0.005)				
Quartile 1			-0.084/-0.023* (0.038)	-0.150/-0.040*** (0.038)	-0.289/-0.077*** (0.039)
Quartile 2		0.084/0.021* (0.038)		-0.066/-0.017 (0.039)	-0.204/-0.052*** (0.040)
Quartile 3		0.150/0.039*** (0.038)	0.066/0.017 (0.039)		-0.139/-0.036*** (0.039)
Quartile 4		0.289/0.074*** (0.039)	0.204/0.053*** (0.040)	0.139/0.036*** (0.039)	
Neuroticism	0.045/0.075*** (0.005)				
Quartile 1			-0.081/0.022* (0.037)	-0.223/-0.060*** (0.038)	-0.349/-0.094*** (0.040)
Quartile 2		0.081/0.021* (0.037)		-0.143/-0.038*** (0.038)	-0.268/-0.071*** (0.040)
Quartile 3		0.223/0.057*** (0.038)	0.143/0.037*** (0.038)		-0.126/-0.032** (0.040)
Quartile 4		0.349/0.086*** (0.040)	0.268/0.066*** (0.040)	0.126/0.031** (0.040)	
Agreeableness	-0.014/-0.020* (0.006)				
Quartile 1			0.061/0.017 (0.033)	0.033/0.009 (0.046)	0.036/0.010 (0.047)
Quartile 2		-0.061/-0.018 (0.033)		-0.028/-0.008 (0.043)	-0.025/-0.007 (0.043)
Quartile 3		-0.033/-0.007 (0.046)	0.028/0.006 (0.043)		0.003/0.001 (0.051)
Quartile 4		-0.036/-0.008 (0.047)	0.025/0.005 (0.043)	-0.003/-0.001 (0.051)	

Table 6.9 - Continued

	Full Variable Coeff./Beta	Reference Group Quartile 1 Coeff./Beta	Reference Group Quartile 2 Coeff./Beta	Reference Group Quartile 3 Coeff./Beta	Reference Group Quartile 4 Coeff./Beta
Conscientiousness	-0.023/-0.037*** (0.005)				
Quartile 1			0.073/0.020* (0.035)	0.133/0.037*** (0.040)	0.154/0.042*** (0.038)
Quartile 2		-0.073/-0.020* (0.035)		0.060/0.016 (0.040)	0.081/0.022* (0.038)
Quartile 3		-0.133/-0.031*** (0.040)	-0.060/-0.014 (0.040)		0.021/0.005 (0.043)
Quartile 4		-0.154/-0.039*** (0.038)	-0.081/-0.021* (0.038)	-0.021/-0.005 (0.042)	
Openness	0.059/0.086*** (0.006)				
Quartile 1			-0.071/-0.020 (0.040)	-0.216/-0.061*** (0.035)	-0.360/-0.101*** (0.042)
Quartile 2		0.071/0.016 (0.040)		-0.145/-0.033*** (0.041)	-0.289/-0.065*** (0.047)
Quartile 3		0.216/0.060*** (0.035)	0.145/0.040*** (0.041)		-0.144/-0.040*** (0.040)
Quartile 4		0.360/0.085*** (0.042)	0.289/0.068*** (0.047)	0.144/0.034*** (0.040)	

Notes: n = 14,487; The covariates have been standardized by: Age (-0.030/-0.031***), Male (0.381/0.114***), White (0.176/0.048***), Black (0.183/0.046**), Married (-0.418/-0.125***), College Degree (-0.306/-0.086***), and Income (0.000/-0.049***). The coefficients and betas are listed next to the variables.

* p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.10 The Effect of Personality on Last 12-Month Favorite Drug Use

	Full Variable Coeff./Beta	Reference Group Quartile 1 Coeff./Beta	Reference Group Quartile 2 Coeff./Beta	Reference Group Quartile 3 Coeff./Beta	Reference Group Quartile 4 Coeff./Beta
Extraversion	0.031/0.056*** (0.011)				
Quartile 1			0.063/0.015 (0.095)	-0.049/-0.012 (0.092)	-0.172/-0.042 (0.090)
Quartile 2		-0.063/-0.015 (0.095)		-0.112/-0.026 (0.095)	-0.235/-0.055** (0.093)
Quartile 3		0.049/0.012 (0.092)	0.112/0.028 (0.095)		-0.123/-0.030 (0.088)
Quartile 4		0.172/0.045 (0.090)	0.235/0.062** (0.093)	0.123/0.032 (0.088)	
Neuroticism	0.073/0.122*** (0.011)				
Quartile 1			-0.246/-0.061** (0.092)	-0.238/-0.059** (0.093)	-0.604/-0.149*** (0.092)
Quartile 2		0.246/0.060** (0.092)		0.008/0.002 (0.092)	-0.359/-0.087*** (0.091)
Quartile 3		0.238/0.058** (0.093)	-0.008/-0.002 (0.092)		-0.367/-0.090*** (0.089)
Quartile 4		0.605/0.154*** (0.092)	0.359/0.091*** (0.091)	0.367/0.093*** (0.089)	
Agreeableness	-0.006/-0.008 (0.014)				
Quartile 1			0.026/0.007 (0.077)	-0.151/-0.041 (0.110)	-0.130/-0.036 (0.112)
Quartile 2		-0.026/-0.007 (0.077)		-0.177/-0.049 (0.100)	-0.157/-0.043 (0.105)
Quartile 3		0.151/0.029 (0.110)	0.177/0.034 (0.105)		0.021/0.004 (0.124)
Quartile 4		0.130/0.026 (0.117)	0.157/0.031 (0.105)	-0.021/-0.004 (0.124)	

Table 6.10 - Continued

	Full Variable Coeff./Beta	Reference Group Quartile 1 Coeff./Beta	Reference Group Quartile 2 Coeff./Beta	Reference Group Quartile 3 Coeff./Beta	Reference Group Quartile 4 Coeff./Beta
Conscientiousness	-0.035/-0.057** (0.011)				
Quartile 1			0.061/0.017 (0.081)	0.169/0.047 (0.095)	0.296/0.082*** (0.090)
Quartile 2		-0.061/-0.016 (0.081)		0.108/0.028 (0.100)	0.234/0.060** (0.096)
Quartile 3		-0.169/-0.036 (0.095)	-0.108/-0.023 (0.100)		0.126/0.027 (0.108)
Quartile 4		-0.296/-0.067*** (0.090)	-0.234/-0.053** (0.096)	-0.126/-0.029 (0.108)	
Openness	-0.027/-0.038 (0.014)				
Quartile 1			0.015/0.004 (0.101)	0.142/0.036 (0.085)	0.186/0.047 (0.097)
Quartile 2		-0.015/-0.003 (0.101)		0.128/0.027 (0.098)	0.171/0.036 (0.108)
Quartile 3		-0.142/-0.038 (0.085)	-0.128/-0.034 (0.098)		0.044/0.012 (0.088)
Quartile 4		-0.186/-0.046 (0.097)	-0.171/-0.042 (0.108)	-0.044/-0.011 (0.088)	

Notes: n = 2,936; The covariates have been standardized by: Age (-0.010/-0.010), Male (0.125/0.035), White (0.168/0.034), Black (0.358/0.057*), Married (-0.364/-0.103***), College Degree (-0.261/-0.063***), and Income (0.000/-0.023). The coefficients and betas are listed next to the variables.
 * p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.11 The Effect of Personality on Past 30-Day Cigarette Use

	Full Variable Coeff./Beta	Reference Group Quartile 1 Coeff./Beta	Reference Group Quartile 2 Coeff./Beta	Reference Group Quartile 3 Coeff./Beta	Reference Group Quartile 4 Coeff./Beta
Extraversion	0.301/0.074*** (0.034)				
Quartile 1			-0.406/-0.015 (0.277)	-1.004/-0.036*** (0.277)	-2.249/-0.081*** (0.288)
Quartile 2		0.406/0.014 (0.277)		-0.598/-0.020* (0.286)	-1.843/-0.063*** (0.296)
Quartile 3		1.004/0.035*** (0.277)	0.598/0.021* (0.286)		-1.245/-0.043*** (0.288)
Quartile 4		2.249/0.077*** (0.288)	1.843/0.063*** (0.296)	1.245/0.043*** (0.288)	
Neuroticism	0.347/0.076*** (0.038)				
Quartile 1			0.292/0.011 (0.269)	-1.020/-0.037*** (0.282)	-1.988/-0.072*** (0.295)
Quartile 2		-0.292/-0.010 (0.269)		-1.312/-0.047*** (0.278)	-2.280/-0.081*** (0.291)
Quartile 3		1.020/0.035*** (0.282)	1.312/0.045*** (0.278)		-0.968/-0.033*** (0.294)
Quartile 4		1.988/0.065*** (0.295)	2.280/0.075*** (0.291)	0.968/0.032*** (0.294)	
Agreeableness	-0.036/-0.007 (0.047)				
Quartile 1			0.351/0.013 (0.244)	0.376/0.340 (0.340)	-0.156/-0.006 (0.346)
Quartile 2		-0.351/-0.014 (0.244)		0.024/0.010 (0.316)	-0.507/-0.020 (0.317)
Quartile 3		-0.376/-0.010 (0.340)	-0.024/-0.001 (0.316)		-0.532/-0.012 (0.374)
Quartile 4		0.156/0.004 (0.346)	0.507/0.015 (0.317)	0.532/0.015 (0.374)	

Table 6.11 - Continued

	Full Variable Coeff./Beta	Reference Group Quartile 1 Coeff./Beta	Reference Group Quartile 2 Coeff./Beta	Reference Group Quartile 3 Coeff./Beta	Reference Group Quartile 4 Coeff./Beta
Conscientiousness	-0.258/-0.056*** (0.037)				
Quartile 1			0.793/0.029** (0.260)	1.752/0.065*** (0.294)	1.513/0.056*** (0.278)
Quartile 2		-0.793/-0.028** (0.260)		0.959/0.034*** (0.297)	0.721/0.026** (0.283)
Quartile 3		-1.751/-0.054*** (0.294)	-0.959/-0.030*** (0.297)		-0.239/-0.007 (0.312)
Quartile 4		-1.513/0.051*** (0.278)	-0.721/-0.024** (0.283)	0.239/0.008 (0.312)	
Openness	0.090/0.018* (0.044)				
Quartile 1			-0.719/-0.027* (0.296)	-0.578/-0.022* (0.256)	-0.221/-0.008 (0.311)
Quartile 2		0.719/0.022* (0.296)		0.141/0.004 (0.299)	0.499/0.015 (0.344)
Quartile 3		0.578/0.021* (0.256)	-0.141/-0.005 (0.299)		0.357/0.013 (0.296)
Quartile 4		0.221/0.007 (0.311)	-0.499/-0.016 (0.344)	-0.357/-0.011 (0.296)	

Notes: n = 14,443; The covariates have been standardized by: Age (-0.181/-0.025**), Male (1.640/0.066***), White (1.628/0.059***), Black (-1.634/-0.054***), Married (-1.504/-0.060***), College Degree (-5.737/0.216***), and Income (0.000/-0.090***). The coefficients and betas are listed next to the variables.

* p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.12 The Effect of Personality on Past 30-Day Alcohol Use

	Full Variable Coeff./Beta	Reference Group Quartile 1 Coeff./Beta	Reference Group Quartile 2 Coeff./Beta	Reference Group Quartile 3 Coeff./Beta	Reference Group Quartile 4 Coeff./Beta
Extraversion	0.071/0.123*** (0.005)				
Quartile 1			-0.206/-0.052*** (0.038)	-0.364/-0.092*** (0.039)	-0.529/-0.134*** (0.040)
Quartile 2		0.206/0.050*** (0.039)		-0.158/-0.038*** (0.040)	-0.323/-0.077*** (0.041)
Quartile 3		0.364/0.089*** (0.039)	0.158/0.038*** (0.040)		-0.165/-0.040*** (0.040)
Quartile 4		0.529/0.128*** (0.040)	0.323/0.078*** (0.041)	0.165/0.040*** (0.040)	
Neuroticism	0.008/0.012 (0.005)				
Quartile 1			-0.006/-0.002 (0.038)	-0.021/-0.005 (0.039)	-0.074/-0.019 (0.041)
Quartile 2		0.006/0.002 (0.038)		-0.015/-0.004 (0.039)	-0.067/-0.017 (0.041)
Quartile 3		0.021/0.005 (0.039)	0.015/0.004 (0.039)		-0.052/-0.013 (0.041)
Quartile 4		0.074/0.017 (0.041)	0.067/0.016 (0.041)	0.052/0.012 (0.041)	
Agreeableness	-0.016/-0.022** (0.007)				
Quartile 1			0.009/0.002 (0.034)	0.118/0.031** (0.048)	0.090/0.024 (0.048)
Quartile 2		-0.009/-0.002 (0.034)		0.109/0.030** (0.044)	0.081/0.022 (0.044)
Quartile 3		-0.118/-0.023** (0.048)	-0.109/-0.021** (0.044)		-0.028/-0.005 (0.052)
Quartile 4		-0.090/-0.018 (0.048)	-0.081/-0.016 (0.044)	0.028/0.006 (0.052)	

Table 6.12 - Continued

	Full Variable Coeff./Beta	Reference Group Quartile 1 Coeff./Beta	Reference Group Quartile 2 Coeff./Beta	Reference Group Quartile 3 Coeff./Beta	Reference Group Quartile 4 Coeff./Beta
Conscientiousness	-0.023/-0.035*** (0.005)				
Quartile 1			0.079/0.021* (0.036)	0.102/0.027* (0.041)	0.151/0.039*** (0.039)
Quartile 2		-0.079/-0.020* (0.036)		0.023/0.006 (0.041)	0.071/0.018 (0.040)
Quartile 3		-0.102/-0.022** (0.041)	-0.023/-0.005 (0.041)		0.049/0.011 (0.044)
Quartile 4		-0.151/-0.036*** (0.039)	-0.072/-0.017 (0.040)	-0.049/-0.012 (0.044)	
Openness	0.044/0.060*** (0.006)				
Quartile 1			-0.069/-0.018 (0.041)	-0.216/-0.057*** (0.036)	-0.307/-0.082*** (0.044)
Quartile 2		0.069/0.015 (0.041)		-0.147/-0.031*** (0.042)	-0.239/-0.051*** (0.048)
Quartile 3		0.216/0.056*** (0.036)	0.147/0.038*** (0.042)		-0.092/-0.024* (0.041)
Quartile 4		0.307/0.068*** (0.044)	0.239/0.053*** (0.048)	0.092/0.020* (0.041)	

Notes: n = 14,475; The covariates have been standardized by: Age (-0.024/-0.024**), Male (0.680/0.192***), White (0.404/0.104***), Black (-0.012/-0.003), Married (-0.513/-0.145***), College Degree (0.378/0.101***), and Income (0.000/0.096***). The coefficients and betas are listed next to the variables.

* p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.13 The Effect of Personality on Past 30-Day Marijuana Use

	Full Variable Coeff./Beta	Reference Group Quartile 1 Coeff./Beta	Reference Group Quartile 2 Coeff./Beta	Reference Group Quartile 3 Coeff./Beta	Reference Group Quartile 4 Coeff./Beta
Extraversion	0.035/0.067*** (0.004)				
Quartile 1			-0.086/-0.024* (0.036)	-0.144/-0.041*** (0.036)	-0.274/-0.077*** (0.037)
Quartile 2		0.086/0.023* (0.036)		-0.058/-0.016 (0.037)	-0.188/-0.050*** (0.038)
Quartile 3		0.144/0.039*** (0.036)	0.058/0.016 (0.037)		-0.130/-0.035*** (0.037)
Quartile 4		0.274/0.074*** (0.037)	0.188/0.051*** (0.038)	0.130/0.035*** (0.038)	
Neuroticism	0.042/0.072*** (0.005)				
Quartile 1			-0.074/-0.021* (0.035)	-0.190/-0.054*** (0.037)	-0.324/-0.092*** (0.038)
Quartile 2		0.074/0.021* (0.035)		-0.115/-0.032*** (0.036)	-0.249/-0.070*** (0.038)
Quartile 3		0.190/0.051*** (0.037)	0.115/0.031*** (0.036)		-0.134/-0.036*** (0.038)
Quartile 4		0.324/0.084*** (0.038)	0.249/0.065*** (0.038)	0.134/0.035*** (0.038)	
Agreeableness	-0.012/-0.018 (0.006)				
Quartile 1			0.053/0.016 (0.032)	0.035/0.010 (0.044)	0.006/0.002 (0.045)
Quartile 2		-0.053/-0.016 (0.032)		-0.019/-0.006 (0.041)	-0.047/-0.014 (0.037)
Quartile 3		-0.035/-0.007 (0.044)	0.019/0.004 (0.041)		-0.028/-0.006 (0.049)
Quartile 4		-0.006/-0.001 (0.045)	0.047/0.011 (0.041)	0.028/0.006 (0.049)	

Table 6.13 - Continued

	Full Variable Coeff./Beta	Reference Group Quartile 1 Coeff./Beta	Reference Group Quartile 2 Coeff./Beta	Reference Group Quartile 3 Coeff./Beta	Reference Group Quartile 4 Coeff./Beta
Conscientiousness	-0.020/-0.035*** (0.005)				
Quartile 1			0.073/0.021* (0.034)	0.148/0.043*** (0.075)	0.130/0.038*** (0.036)
Quartile 2		-0.073/-0.021* (0.034)		0.075/0.021* (0.038)	0.057/0.016 (0.037)
Quartile 3		-0.148/-0.036*** (0.038)	-0.075/-0.018* (0.038)		-0.018/-0.004 (0.041)
Quartile 4		-0.130/-0.035*** (0.036)	-0.057/-0.015 (0.037)	0.018/0.005 (0.041)	
Openness	0.048/0.074*** (0.006)				
Quartile 1			-0.017/-0.005 (0.038)	-0.172/-0.051*** (0.033)	-0.264/-0.078*** (0.040)
Quartile 2		0.017/0.004 (0.038)		-0.155/-0.037*** (0.039)	-0.247/-0.059*** (0.045)
Quartile 3		0.172/0.050*** (0.033)	0.155/0.045*** (0.039)		-0.092/-0.027* (0.038)
Quartile 4		0.264/0.066*** (0.040)	0.247/0.061*** (0.044)	0.092/0.023* (0.038)	

Notes: n = 14,490; The covariates have been standardized by: Age (-0.021/-0.023**), Male (0.326/0.103***), White (0.127/0.037**), Black (0.139/0.037**), Married (-0.351/-0.111***), College Degree (-0.287/-0.085***), and Income (0.000/-0.054***). The coefficients and betas are listed next to the variables.

* p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.14 The Effect of Personality on Past 30-Day Favorite Drug Use

	Full Variable Coeff./Beta	Reference Group Quartile 1 Coeff./Beta	Reference Group Quartile 2 Coeff./Beta	Reference Group Quartile 3 Coeff./Beta	Reference Group Quartile 4 Coeff./Beta
Extraversion	0.037/0.060* (0.017)				
Quartile 1			-0.098/-0.022 (0.156)	-0.073/-0.016 (0.150)	-0.258/-0.057 (0.145)
Quartile 2		0.098/0.020 (0.156)		0.025/0.005 (0.154)	-0.160/-0.033 (0.150)
Quartile 3		0.073/0.016 (0.150)	-0.025/-0.006 (0.154)		-0.185/-0.041 (0.140)
Quartile 4		0.258/0.062 (0.145)	0.160/0.039 (0.150)	0.185/0.045 (0.140)	
Neuroticism	0.061/0.094*** (0.018)				
Quartile 1			-0.137/-0.029 (0.152)	-0.141/-0.030 (0.155)	-0.496/-0.105*** (0.149)
Quartile 2		0.137/0.030 (0.152)		-0.004/-0.001 (0.149)	-0.359/-0.079** (0.142)
Quartile 3		0.141/0.031 (0.155)	0.004/0.001 (0.149)		-0.355/-0.078** (0.141)
Quartile 4		0.496/0.119*** (0.149)	0.359/0.086** (0.142)	0.355/0.085** (0.141)	
Agreeableness	0.007/0.010 (0.022)				
Quartile 1			0.061/0.015 (0.124)	-0.304/-0.075 (0.175)	-0.228/-0.056 (0.178)
Quartile 2		-0.061/-0.015 (0.124)		-0.364/-0.091* (0.163)	-0.289/-0.072 (0.168)
Quartile 3		0.304/0.053 (0.175)	0.364/0.063* (0.167)		0.076/0.013 (0.196)
Quartile 4		0.228/0.042 (0.178)	0.289/0.053 (0.168)	-0.076/-0.014 (0.196)	

Table 6.14 - Continued

	Full Variable Coeff./Beta	Reference Group Quartile 1 Coeff./Beta	Reference Group Quartile 2 Coeff./Beta	Reference Group Quartile 3 Coeff./Beta	Reference Group Quartile 4 Coeff./Beta
Conscientiousness	-0.064/-0.096*** (0.018)				
Quartile 1			0.119/0.030 (0.128)	0.384/0.097** (0.155)	0.441/0.111** (0.146)
Quartile 2		-0.119/-0.027 (0.128)		0.265/0.061 (0.163)	0.322/0.074* (0.156)
Quartile 3		-0.384/-0.071** (0.155)	-0.265/-0.049 (0.163)		0.057/0.011 (0.178)
Quartile 4		-0.441/-0.089*** (0.146)	-0.322/-0.065* (0.156)	-0.057/-0.012 (0.178)	
Openness	-0.060/-0.078** (0.022)				
Quartile 1			0.180/0.042 (0.161)	0.322/0.074* (0.137)	0.485/0.112** (0.154)
Quartile 2		-0.180/-0.034 (0.161)		0.141/0.027 (0.159)	0.304/0.058 (0.172)
Quartile 3		-0.322/-0.077* (0.137)	-0.141/-0.034 (0.159)		0.163/0.039 (0.141)
Quartile 4		-0.485/-0.109** (0.154)	-0.304/-0.068 (0.172)	-0.163/-0.037 (0.141)	

Notes: n = 1,404; The covariates have been standardized by: Age (0.015/0.013), Male (-0.012/-0.003), White (0.106/0.021), Black (-0.131/-0.021), Married (-0.046/-0.011), College Degree (-0.445/-0.096***), and Income (0.000/-0.062*). The coefficients and betas are listed next to the variables.
* p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.15 The Effect of Personality on the Odds of Lifetime Nicotine Dependence

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Extraversion	-0.011/0.989 (0.010)				
Quartile 1			0.180/1.197* (0.101)	0.319/1.375*** (0.119)	0.045/1.046 (0.088)
Quartile 2		-0.180/0.835* (0.070)		0.139/1.149 (0.104)	-0.135/0.874 (0.077)
Quartile 3		-0.319/0.727*** (0.063)	-0.139/0.870 (0.079)		-0.274/0.760** (0.067)
Quartile 4		-0.045/0.956 (0.081)	0.135/1.145 (0.101)	0.274/1.315** (0.116)	
Neuroticism	0.087/1.092*** (0.012)				
Quartile 1			0.015/1.015 (0.091)	-0.268/0.765** (0.067)	-0.518/0.596*** (0.052)
Quartile 2		-0.015/0.985 (0.089)		-0.283/0.753*** (0.065)	-0.533/0.587*** (0.051)
Quartile 3		0.268/1.308** (0.115)	0.283/1.327*** (0.115)		-0.250/0.779** (0.063)
Quartile 4		0.518/1.679*** (0.147)	0.533/1.704*** (0.147)	0.250/1.284** (0.104)	
Agreeableness	-0.005/0.995 (0.013)				
Quartile 1			-0.004/0.996 (0.072)	-0.007/0.993 (0.105)	-0.117/0.890 (0.094)
Quartile 2		0.004/1.004 (0.072)		-0.003/0.997 (0.101)	-0.113/0.893 (0.089)
Quartile 3		0.007/1.007 (0.107)	0.003/1.003 (0.102)		-0.110/0.896 (0.107)
Quartile 4		0.117/1.124 (0.119)	0.113/1.120 (0.112)	0.110/1.116 (0.134)	

Table 6.15 - Continued

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Conscientiousness	-0.056/0.946*** (0.010)				
Quartile 1			0.203/1.225** (0.091)	0.491/1.635*** (0.152)	0.325/1.385*** (0.119)
Quartile 2		-0.203/0.816** (0.061)		0.288/1.334** (0.130)	0.122/1.130 (0.103)
Quartile 3		-0.491/0.612*** (0.057)	-0.288/0.749** (0.073)		-0.166/0.847 (0.090)
Quartile 4		-0.325/0.722*** (0.062)	-0.122/0.885 (0.080)	0.166/1.180 (0.126)	
Openness	-0.018/0.013 (0.013)				
Quartile 1			0.051/1.053 (0.093)	0.207/1.230** (0.096)	0.095/1.100 (0.103)
Quartile 2		-0.051/0.950 (0.084)		0.156/1.168 (0.106)	0.044/1.045 (0.108)
Quartile 3		-0.207/0.813** (0.064)	-0.156/0.856 (0.078)		-0.111/0.895 (0.081)
Quartile 4		-0.095/0.909 (0.085)	-0.044/0.957 (0.099)	0.111/1.118 (0.101)	

Notes: n = 7,094; The covariates have been standardized by: Age (-0.023/0.971), Male (0.485/1.624***), White (0.581/1.788***), Black (-0.071/0.932), Married (-0.042/0.959), College Degree (-0.861/0.423***), and Income (0.000/0.999***). The coefficients and odds ratios are listed next to the variables.
 * p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.16 The Effect of Personality on the Odds of Lifetime Alcohol Dependence

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Extraversion	0.046/1.047*** (0.011)				
Quartile 1			-0.009/0.991 (0.086)	-0.079/0.924 (0.078)	-0.237/0.789*** (0.066)
Quartile 2		0.009/1.009 (0.088)		-0.070/0.932 (0.078)	-0.228/0.796** (0.066)
Quartile 3		0.079/1.082 (0.091)	0.070/1.073 (0.089)		-0.158/0.854* (0.067)
Quartile 4		0.237/1.267** (0.106)	0.228/1.256** (0.104)	0.158/1.171* (0.092)	
Neuroticism	0.111/1.117*** (0.012)				
Quartile 1			-0.152/0.859 (0.068)	-0.415/0.660*** (0.054)	-0.723/0.485*** (0.040)
Quartile 2		0.152/1.164 (0.092)		-0.263/0.769*** (0.063)	-0.571/0.565*** (0.047)
Quartile 3		0.415/1.515*** (0.123)	0.263/1.301*** (0.106)		-0.308/0.735*** (0.061)
Quartile 4		0.723/2.061*** (0.172)	0.571/1.771*** (0.147)	0.308/1.361*** (0.114)	
Agreeableness	0.012/1.012 (0.014)				
Quartile 1			-0.048/0.953 (0.067)	-0.070/0.932 (0.093)	-0.092/0.912 (0.092)
Quartile 2		0.048/1.049 (0.074)		-0.023/0.978 (0.091)	-0.044/0.957 (0.089)
Quartile 3		0.070/1.073 (0.107)	0.023/1.023 (0.095)		-0.021/0.979 (0.107)
Quartile 4		0.092/1.096 (0.110)	0.044/1.045 (0.097)	0.021/1.022 (0.112)	

Table 6.16 - Continued

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Conscientiousness	-0.055/0.946*** (0.010)				
Quartile 1			0.225/1.252** (0.092)	0.227/1.255** (0.105)	0.375/1.456*** (0.118)
Quartile 2		-0.225/0.799** (0.058)		0.003/1.003 (0.087)	0.151/1.163 (0.100)
Quartile 3		-0.227/0.797** (0.066)	-0.003/0.997 (0.087)		0.148/1.160 (0.109)
Quartile 4		-0.375/0.687*** (0.056)	-0.151/0.860 (0.074)	-0.148/0.862 (0.081)	
Openness	-0.005/0.995 (0.013)				
Quartile 1			0.079/1.083 (0.098)	0.024/1.025 (0.078)	-0.051/0.950 (0.083)
Quartile 2		-0.079/0.924 (0.084)		-0.054/0.947 (0.082)	-0.130/0.878 (0.085)
Quartile 3		-0.024/0.976 (0.074)	0.055/1.056 (0.092)		-0.076/0.927 (0.074)
Quartile 4		0.051/1.052 (0.092)	0.130/1.139 (0.110)	0.076/1.079 (0.086)	

Notes: n = 5,982; The covariates have been standardized by: Age (-0.047/0.954**), Male (0.515/1.674***), White (-0.147/0.863), Black (-0.544/0.581***), Married (-0.435/0.647***), College Degree (-0.279/0.756***), and Income (0.000/0.999). The coefficients and odds ratios are listed next to the variables.

* p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.17 The Effect of Personality on the Odds of Lifetime Marijuana Dependence

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Extraversion	-0.084/0.920*** (0.021)				
Quartile 1			0.273/1.313 (0.253)	0.305/1.357 (0.263)	0.880/2.410*** (0.507)
Quartile 2		-0.273/0.761 (0.147)		0.032/1.033 (0.211)	0.607/1.835** (0.406)
Quartile 3		-0.305/0.737 (0.143)	-0.032/0.968 (0.198)		0.575/1.777** (0.386)
Quartile 4		-0.880/0.415*** (0.087)	-0.607/0.545** (0.121)	-0.575/0.563** (0.122)	
Neuroticism	0.131/1.140*** (0.029)				
Quartile 1			-0.526/0.591* (0.130)	-0.563/0.569** (0.127)	-1.052/0.349*** (0.075)
Quartile 2		0.526/1.692* (0.372)		-0.037/0.964 (0.195)	-0.526/0.591** (0.113)
Quartile 3		0.563/1.756** (0.393)	0.037/1.038 (0.210)		-0.489/0.613** (0.117)
Quartile 4		1.052/2.864*** (0.474)	0.526/1.692** (0.325)	0.489/1.631** (0.311)	
Agreeableness	0.086/1.090** (0.035)				
Quartile 1			-0.223/0.800 (0.141)	-0.533/0.587* (0.142)	-0.698/0.497** (0.117)
Quartile 2		0.223/1.250 (0.219)		-0.310/0.733 (0.168)	-0.476/0.622* (0.137)
Quartile 3		0.533/1.704* (0.413)	0.310/1.364 (0.313)		-0.165/0.848 (0.220)
Quartile 4		0.698/2.010** (0.474)	0.476/1.609* (0.354)	0.165/1.180 (0.306)	

Table 6.17 - Continued

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Conscientiousness	-0.054/0.948* (0.023)				
Quartile 1			0.324/1.383 (0.245)	0.410/1.507 (0.330)	0.395/1.485* (0.304)
Quartile 2		-0.324/0.723 (0.128)		0.086/1.090 (0.257)	0.071/1.074 (0.241)
Quartile 3		-0.410/0.663 (0.145)	-0.086/0.917 (0.217)		-0.015/0.985 (0.254)
Quartile 4		-0.395/0.673* (0.138)	-0.071/0.931 (0.209)	0.015/1.015 (0.262)	
Openness	0.046/1.047 (0.032)				
Quartile 1			-0.065/0.937 (0.223)	-0.041/0.960 (0.192)	-0.359/0.699 (0.148)
Quartile 2		0.065/1.067 (0.254)		0.024/1.025 (0.230)	-0.294/0.745 (0.174)
Quartile 3		0.041/1.041 (0.208)	-0.024/0.976 (0.219)		-0.318/0.728 (0.135)
Quartile 4		0.358/1.431 (0.303)	0.294/1.342 (0.312)	0.318/1.374 (0.256)	

Notes: n = 3,919; The covariates have been standardized by: Age (0.026/1.026), Male (0.788/2.200***), White (0.073/1.076), Black (-0.489/0.613), Married (-0.488/0.613**), College Degree (0.013/1.013), and Income (0.000/1.000). The coefficients and odds ratios are listed next to the variables.
 * p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.18 The Effect of Personality on the Odds of Lifetime Favorite Drug Dependence

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Extraversion	-0.013/0.987				
Quartile 1			0.032/1.032 (0.166)	-0.224/0.799 (0.126)	0.108/1.115 (0.167)
Quartile 2		-0.032/0.969 (0.156)		-0.256/0.774 (0.129)	0.077/1.080 (0.172)
Quartile 3		0.224/1.251 (0.179)	0.256/1.292 (0.215)		0.333/1.395* (0.212)
Quartile 4		-0.109/1.242 (0.192)	-0.077/0.926 (0.148)	-0.333/0.717* (0.109)	
Neuroticism	0.036/1.037* (0.020)				
Quartile 1			0.097/1.102 (0.176)	-0.119/0.888 (0.141)	-0.217/0.805 (0.125)
Quartile 2		-0.097/0.908 (0.145)		-0.216/0.806 (0.129)	-0.314/0.731* (0.113)
Quartile 3		0.119/1.126 (0.179)	0.216/1.241 (0.198)		-0.098/0.907 (0.135)
Quartile 4		0.217/1.242 (0.192)	0.314/1.368* (0.212)	0.098/1.103 (0.164)	
Agreeableness	0.027/1.027 (0.024)				
Quartile 1			-0.092/0.912 (0.119)	-0.134/0.874 (0.159)	-0.304/0.738 (0.140)
Quartile 2		0.092/1.097 (0.144)		-0.042/0.959 (0.168)	-0.212/0.809 (0.146)
Quartile 3		0.134/1.144 (0.208)	-0.103/1.043 (0.183)		-0.170/0.844 (0.177)
Quartile 4		0.304/1.356 (0.258)	0.145/1.236 (0.224)	0.170/1.185 (0.248)	

Table 6.18 - Continued

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Conscientiousness	-0.013/0.988 (0.019)				
Quartile 1			0.094/1.098 (0.147)	0.197/1.217 (0.198)	-0.051/0.950 (0.150)
Quartile 2		-0.094/0.910 (0.122)		0.103/1.108 (0.187)	-0.145/0.865 (0.145)
Quartile 3		-0.197/0.821 (0.133)	-0.103/0.902 (0.152)		-0.248/0.781 (0.781)
Quartile 4		0.051/1.052 (0.166)	0.145/1.156 (0.193)	0.248/1.281 (0.243)	
Openness	0.025/1.025 (0.024)				
Quartile 1			0.006/1.006 (0.172)	0.030/1.031 (0.149)	-0.110/0.895 (0.148)
Quartile 2		-0.006/0.994 (0.170)		0.024/1.025 (0.169)	-0.116/0.890 (0.164)
Quartile 3		-0.030/0.970 (0.140)	-0.024/0.976 (0.161)		-0.141/0.869 (0.131)
Quartile 4		0.110/1.117 (0.185)	0.116/1.123 (0.207)	0.141/1.151 (0.173)	

Notes: n = 1,500; The covariates have been standardized by: Age (0.045/1.046), Male (-0.164/0.849), White (0.016/1.016), Black (-0.369/0.691), Married (-0.071/0.932), College Degree (-0.382/0.683**), and Income (0.000/0.999***). The coefficients and odds ratios are listed next to the variables.
 * p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.19 Summary Table on the Effects of Personality on Drug Use

	<u>Extraversion</u>	<u>Neuroticism</u>	<u>Agreeableness</u>	<u>Conscientiousness</u>	<u>Openness</u>
Alcohol (12-Mos)	+		-	-	+
Binge Drinking (12-Mos)	+	+	-	-	+
Marijuana (12-Mos)	+	+	-	-	+
Favorite Drug (12-Mos)	+	+		-	
Cigarettes (30-Days)	+	+		-	+
Alcohol (30-Days)	+		-	-	+
Marijuana (30-Days)	+	+		-	+
Favorite Drug (30-Days)	+	+		-	-
Nicotine Dependence		+		-	
Alcohol Dependence	+	+		-	
Marijuana Dependence	-	+	+	-	
Favorite Drug Dependence		+			

Notes: + indicates a significant & positive relationship, - indicates a significant & negative relationship, no sign indicates that the relationship was not significant.

Table 6.20 The Effect of Personality on the Odds of Ever Having Been Arrested

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Extraversion	0.084/1.088*** (0.008)				
Quartile 1			-0.131/0.877* (0.050)	-0.335/0.715*** (0.041)	-0.616/0.540*** (0.032)
Quartile 2		0.131/1.140* (0.066)		-0.204/0.816*** (0.048)	-0.485/0.616*** (0.037)
Quartile 3		0.335/1.398*** (0.080)	0.204/1.226*** (0.072)		-0.281/0.755*** (0.044)
Quartile 4		0.616/1.852*** (0.109)	0.485/1.624*** (0.097)	0.281/1.325*** (0.077)	
Neuroticism	0.063/1.065*** (0.008)				
Quartile 1			-0.050/0.951 (0.053)	-0.262/0.770*** (0.044)	-0.430/0.650*** (0.039)
Quartile 2		0.050/1.051 (0.059)		-0.217/0.809*** (0.046)	-0.380/0.684*** (0.041)
Quartile 3		0.262/1.299*** (0.075)	0.212/1.236*** (0.070)		-0.169/0.845** (0.050)
Quartile 4		0.430/1.538*** (0.093)	0.380/1.463*** (0.087)	0.169/1.184** (0.070)	
Agreeableness	-0.035/0.965*** (0.009)				
Quartile 1			0.134/1.143** (0.055)	0.106/1.112 (0.078)	0.188/1.206** (0.087)
Quartile 2		-0.134/0.875** (0.042)		-0.028/0.972 (0.066)	0.054/1.055 (0.072)
Quartile 3		-0.106/0.899 (0.063)	0.028/1.028 (0.069)		0.082/1.085 (0.088)
Quartile 4		-0.188/0.829** (0.060)	-0.054/0.948 (0.065)	-0.082/0.922 (0.075)	

Table 6.20 - Continued

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Conscientiousness	-0.004/0.996 (0.008)				
Quartile 1			-0.020/0.980 (0.051)	-0.005/0.995 (0.060)	-0.017/0.983 (0.056)
Quartile 2		0.020/1.020 (0.053)		0.015/1.015 (0.062)	0.003/1.003 (0.059)
Quartile 3		0.005/1.005 (0.060)	-0.015/0.985 (0.060)		-0.011/0.989 (0.064)
Quartile 4		0.017/1.017 (0.058)	-0.003/0.997 (0.058)	0.011/1.011 (0.066)	
Openness	0.024/1.024** (0.009)				
Quartile 1			-0.055/0.947 (0.058)	-0.173/0.842*** (0.044)	-0.094/0.910 (0.058)
Quartile 2		0.055/1.056 (0.064)		-0.118/0.889* (0.054)	-0.040/0.961 (0.067)
Quartile 3		0.173/1.188*** (0.063)	0.118/1.125* (0.068)		0.078/1.082 (0.065)
Quartile 4		0.094/1.099 (0.070)	0.040/1.040 (0.073)	-0.078/0.925 (0.055)	

Notes: n = 14,433; The covariates have been standardized by: Age (0.011/1.011), Male (1.282/3.604***), White (0.295/1.343***), Black (0.535/1.708***), Married (-0.421/0.657***), College Degree (-0.968/0.380***), and Income (0.000/0.999***). The coefficients and odds ratios are listed next to the variables.
 * p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.21 The Effect of Personality on the Odds of Ever Having Been Incarcerated

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Extraversion	0.074/1.076*** (0.010)				
Quartile 1			-0.123/0.884 (0.063)	-0.267/0.766*** (0.055)	-0.524/0.591*** (0.043)
Quartile 2		0.123/1.131 (0.080)		-0.144/0.866* (0.063)	-0.402/0.669*** (0.050)
Quartile 3		0.266/1.306*** (0.093)	0.144/1.155* (0.084)		-0.258/0.773*** (0.056)
Quartile 4		0.524/1.689*** (0.123)	0.402/1.494*** (0.111)	0.258/1.294*** (0.093)	
Neuroticism	0.064/1.067*** (0.010)				
Quartile 1			-0.001/0.999 (0.071)	-0.177/0.838** (0.060)	-0.461/0.630*** (0.047)
Quartile 2		0.001/1.001 (0.071)		-0.176/0.838** (0.059)	-0.461/0.631*** (0.046)
Quartile 3		0.177/1.194** (0.086)	0.176/1.193** (0.084)		-0.284/0.753*** (0.054)
Quartile 4		0.461/1.586*** (0.118)	0.461/1.585*** (0.115)	0.284/1.329*** (0.095)	
Agreeableness	-0.040/0.961*** (0.011)				
Quartile 1			0.134/1.143* (0.067)	0.186/1.204* (0.110)	0.119/1.127 (0.103)
Quartile 2		-0.134/0.875* (0.051)		0.052/1.054 (0.094)	-0.014/0.986 (0.087)
Quartile 3		-0.186/0.830* (0.076)	-0.052/0.949 (0.084)		-0.067/0.936 (0.100)
Quartile 4		-0.119/0.887 (0.081)	0.014/1.014 (0.090)	0.067/1.069 (0.115)	

Table 6.21 - Continued

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Conscientiousness	-0.010/0.990 (0.009)				
Quartile 1			-0.036/0.965 (0.061)	0.060/1.062 (0.080)	0.004/1.004 (0.072)
Quartile 2		0.036/1.036 (0.066)		0.096/1.101 (0.083)	0.040/1.041 (0.076)
Quartile 3		-0.060/0.942 (0.071)	-0.096/0.909 (0.069)		-0.056/0.946 (0.078)
Quartile 4		-0.004/0.996 (0.072)	-0.040/0.961 (0.071)	0.056/1.057 (0.088)	
Openness	-0.002/0.998 (0.011)				
Quartile 1			-0.041/0.960 (0.071)	-0.083/0.921 (0.060)	0.096/1.100 (0.088)
Quartile 2		0.041/1.041 (0.077)		-0.042/0.959 (0.072)	0.136/1.146 (0.100)
Quartile 3		0.083/1.086 (0.071)	0.042/1.043 (0.078)		0.178/1.195* (0.090)
Quartile 4		-0.096/0.909 (0.073)	-0.136/0.873 (0.076)	-0.178/0.837* (0.063)	

Notes: n = 14,493; The covariates have been standardized by: Age (0.025/1.025), Male (1.353/3.867***), White (0.111/1.118), Black (0.291/1.338**), Married (-0.466/0.627***), College Degree (-1.328/0.265***), and Income (0.000/0.999***). The coefficients and odds ratios are listed next to the variables.
 * p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.22 The Effect of Personality on the Odds of Committing a Robbery in the Last 12-Months

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Extraversion	0.076/1.079* (0.035)				
Quartile 1			-0.443/0.642 (0.168)	-0.483/0.617 (0.168)	-0.481/0.618 (0.177)
Quartile 2		0.443/1.557 (0.407)		-0.040/0.960 (0.255)	-0.038/0.963 (0.267)
Quartile 3		0.483/1.621 (0.442)	0.040/1.041 (0.276)		0.003/1.003 (0.282)
Quartile 4		0.481/1.617 (0.462)	0.038/1.038 (0.288)	-0.003/0.997 (0.280)	
Neuroticism	0.217/1.242*** (0.043)				
Quartile 1			-0.113/0.893 (0.528)	-0.690/0.502* (0.157)	-1.378/0.252*** (0.074)
Quartile 2		0.113/1.119 (0.379)		-0.577/0.562* (0.166)	-1.265/0.282*** (0.079)
Quartile 3		0.690/1.993* (0.623)	0.577/1.781* (0.528)		-0.688/0.503** (0.119)
Quartile 4		1.378/3.966*** (1.171)	1.265/3.543*** (0.989)	0.688/1.990** (0.470)	
Agreeableness	-0.107/0.899** (0.034)				
Quartile 1			0.675/1.963** (0.458)	0.662/1.938 (0.725)	0.521/1.684 (0.300)
Quartile 2		-0.675/0.509** (0.119)		-0.013/0.987 (0.384)	-0.153/0.858 (0.238)
Quartile 3		-0.662/0.516 (0.193)	0.013/1.013 (0.394)		-0.140/0.869 (0.390)
Quartile 4		-0.521/0.594 (0.208)	0.153/1.166 (0.424)	0.140/1.151 (0.608)	

Table 6.22 - Continued

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Conscientiousness	-0.054/0.947 (0.032)				
Quartile 1			0.317/1.373 (0.325)	0.659/1.932* (0.634)	0.140/1.150 (0.300)
Quartile 2		-0.317/0.728 (0.172)		0.341/1.407 (0.486)	-0.178/0.837 (0.238)
Quartile 3		-0.659/0.518* (0.170)	-0.341/0.711 (0.246)		-0.519/0.595 (0.215)
Quartile 4		-0.521/0.870 (0.226)	0.178/1.194 (0.339)	0.519/1.680 (0.608)	
Openness	0.077/1.081 (0.044)				
Quartile 1			-0.165/0.848 (0.246)	-0.382/0.683 (0.169)	-0.355/0.701 (0.206)
Quartile 2		0.165/1.179 (0.342)		-0.217/0.805 (0.232)	-0.190/0.827 (0.271)
Quartile 3		0.382/1.465 (0.362)	0.217/1.242 (0.359)		0.027/1.027 (0.283)
Quartile 4		0.355/1.426 (0.419)	0.190/1.209 (0.396)	-0.027/0.974 (0.268)	

Notes: n = 14,496; The covariates have been standardized by: Age (-0.098/0.907), Male (1.384/3.992***), White (0.010/1.105), Black (0.972/2.644), Married (-0.153/0.858), College Degree (-0.951/0.386**), and Income (0.000/0.999*). The coefficients and odds ratios are listed next to the variables.
 * p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.23 The Effect of Personality on the Odds of Fighting in the Last 12-Months

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Extraversion	0.122/1.130*** (0.020)				
Quartile 1			-0.314/0.730* (0.108)	-0.419/0.658** (0.099)	-0.940/0.391*** (0.056)
Quartile 2		0.314/1.370* (0.203)		-0.104/0.901 (0.133)	-0.625/0.535*** (0.076)
Quartile 3		0.419/1.520** (0.229)	0.104/1.110 (0.164)		-0.521/0.594*** (0.083)
Quartile 4		0.940/2.559*** (0.369)	0.625/1.869*** (0.264)	0.521/1.683*** (0.234)	
Neuroticism	0.153/1.164*** (0.022)				
Quartile 1			-0.034/0.967 (0.148)	-0.498/0.608*** (0.090)	-0.962/0.382*** (0.056)
Quartile 2		0.034/1.034 (0.159)		-0.464/0.629*** (0.091)	-0.928/0.395*** (0.056)
Quartile 3		0.498/1.645*** (0.242)	0.464/1.590*** (0.230)		-0.464/0.629*** (0.083)
Quartile 4		0.962/2.616*** (0.382)	0.928/2.529*** (0.364)	0.464/1.591*** (0.210)	
Agreeableness	-0.060/0.942** (0.020)				
Quartile 1			0.251/1.285* (0.148)	0.487/1.627** (0.316)	0.431/1.539* (0.291)
Quartile 2		-0.251/0.778* (0.090)		0.236/1.266 (0.245)	0.180/1.198 (0.222)
Quartile 3		-0.487/0.615** (0.120)	-0.236/0.790 (0.153)		-0.055/0.946 (0.221)
Quartile 4		-0.431/0.650** (0.123)	-0.180/0.835 (0.155)	0.055/1.057 (0.247)	

Table 6.23 - Continued

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Conscientiousness	-0.049/0.952** (0.017)				
Quartile 1			0.155/1.168 (0.144)	0.347/1.415* (0.218)	0.294/1.342* (0.195)
Quartile 2		-0.155/0.856 (0.105)		0.192/1.211 (0.194)	0.139/1.148 (0.175)
Quartile 3		-0.347/0.707* (0.109)	-0.192/0.826 (0.132)		-0.053/0.948 (0.169)
Quartile 4		-0.294/0.745* (0.109)	-0.139/0.871 (0.133)	0.053/1.054 (0.187)	
Openness	0.006/1.006 (0.022)				
Quartile 1			-0.008/0.992 (0.153)	-0.187/0.829 (0.107)	0.018/1.018 (0.159)
Quartile 2		0.008/1.008 (0.155)		-0.179/0.836 (0.127)	0.026/1.026 (0.179)
Quartile 3		0.187/1.206 (0.156)	0.179/1.196 (0.181)		0.205/1.228 (0.178)
Quartile 4		-0.018/0.982 (0.154)	-0.026/0.974 (0.169)	-0.205/0.815 (0.118)	

Notes: n = 14,496; The covariates have been standardized by: Age (-0.102/0.903***), Male (1.634/5.123***), White (-0.323/0.724), Black (0.108/1.114), Married (-0.859/0.423***), College Degree (-0.755/0.470***), and Income (0.000/0.999). The coefficients and odds ratios are listed next to the variables.

* p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.24 The Effect of Personality on the Odds of Serious Fighting in the Last 12-Months

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Extraversion	0.105/1.111*** (0.016)				
Quartile 1			-0.404/0.667*** (0.078)	-0.492/0.611*** (0.073)	-0.870/0.419*** (0.049)
Quartile 2		0.404/1.498*** (0.174)		-0.088/0.916 (0.105)	-0.465/0.628*** (0.071)
Quartile 3		0.492/1.635*** (0.194)	0.088/1.091 (0.125)		-0.378/0.685*** (0.076)
Quartile 4		0.870/2.386*** (0.277)	0.465/1.592*** (0.179)	0.378/1.459*** (0.162)	
Neuroticism	0.148/1.160*** (0.017)				
Quartile 1			-0.111/0.895 (0.109)	-0.495/0.610*** (0.073)	-1.002/0.367*** (0.043)
Quartile 2		0.111/1.118 (0.137)		-0.384/0.681*** (0.078)	-0.890/0.411*** (0.046)
Quartile 3		0.495/1.640*** (0.195)	0.384/1.467*** (0.168)		-0.507/0.603*** (0.063)
Quartile 4		1.002/2.723*** (0.318)	0.890/2.435*** (0.274)	0.507/1.660*** (0.174)	
Agreeableness	-0.079/0.924*** (0.016)				
Quartile 1			0.325/1.384*** (0.129)	0.437/1.548** (0.229)	0.425/1.530** (0.222)
Quartile 2		-0.325/0.722*** (0.067)		0.111/1.118 (0.165)	0.100/1.035 (0.123)
Quartile 3		-0.437/0.646** (0.096)	-0.111/0.895 (0.132)		-0.012/0.785 (0.111)
Quartile 4		-0.425/0.654** (0.095)	-0.100/0.905 (0.129)	0.012/1.012 (0.178)	

Table 6.24 - Continued

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Conscientiousness	-0.052/0.950*** (0.014)				
Quartile 1			0.188/1.207 (0.118)	0.464/1.591*** (0.201)	0.222/1.249* (0.140)
Quartile 2		-0.188/0.829 (0.081)		0.276/1.318* (0.173)	0.035/1.035 (0.123)
Quartile 3		-0.464/0.629** (0.079)	-0.276/0.758* (0.099)		-0.242/0.785 (0.111)
Quartile 4		-0.222/0.801* (0.090)	-0.035/0.966 (0.114)	0.242/1.274 (0.181)	
Openness	0.045/1.046** (0.018)				
Quartile 1			-0.037/0.963 (0.116)	-0.115/0.892 (0.093)	-0.207/0.813 (0.098)
Quartile 2		0.037/1.038 (0.125)		-0.077/0.926 (0.112)	-0.169/0.844 (0.114)
Quartile 3		0.115/1.122 (0.117)	0.077/1.080 (0.131)		-0.092/0.912 (0.104)
Quartile 4		0.207/1.229 (0.148)	0.169/1.185 (0.159)	0.092/1.096 (0.125)	

Notes: n = 14,494; The covariates have been standardized by: Age (-0.080/0.923***), Male (1.281/3.599***), White (-0.041/0.960), Black (0.309/1.362), Married (-0.581/0.560***), College Degree (-0.898/0.407***), and Income (0.000/0.999***). The coefficients and odds ratios are listed next to the variables.
 * p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.25 The Effect of Personality on the Odds of Committing a Burglary in the Last 12-Months

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Extraversion	0.061/1.063 (0.038)				
Quartile 1			0.013/1.013 (0.302)	-0.045/0.956 (0.293)	-0.407/0.666 (0.196)
Quartile 2		-0.013/0.988 (0.294)		-0.057/0.944 (0.306)	-0.419/0.658 (0.206)
Quartile 3		0.045/1.046 (0.320)	0.057/1.059 (0.343)		-0.362/0.696 (0.217)
Quartile 4		0.407/1.502 (0.443)	0.419/1.521 (0.476)	0.362/1.436 (0.448)	
Neuroticism	0.165/1.180*** (0.045)				
Quartile 1			-0.182/0.833 (0.292)	-0.485/0.616 (0.209)	-0.993/0.371** (0.121)
Quartile 2		0.182/1.200 (0.420)		-0.303/0.739 (0.230)	-0.811/0.445** (0.132)
Quartile 3		0.485/1.625 (0.551)	0.303/1.354 (0.340)		-0.507/0.602 (0.164)
Quartile 4		0.993/2.698*** (0.879)	0.811/2.249** (0.665)	0.507/1.661 (0.452)	
Agreeableness	-0.050/0.951 (0.043)				
Quartile 1			0.214/1.239 (0.308)	0.388/1.474 (0.599)	0.173/1.189 (0.453)
Quartile 2		-0.214/0.807 (0.201)		0.173/1.190 (0.481)	-0.041/0.960 (0.359)
Quartile 3		-0.388/0.679 (0.276)	-0.174/0.841 (0.340)		-0.215/0.807 (0.381)
Quartile 4		-0.173/0.841 (0.321)	0.041/1.042 (0.390)	0.215/1.240 (0.585)	

Table 6.25 - Continued

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Conscientiousness	-0.062/0.940 (0.035)				
Quartile 1			0.457/1.579 (0.424)	0.212/1.236 (0.366)	0.760/2.139* (0.723)
Quartile 2		-0.457/0.633 (0.170)		-0.245/0.783 (0.255)	0.303/1.354 (0.467)
Quartile 3		-0.212/0.809 (0.239)	0.245/1.277 (0.417)		0.548/1.730 (0.666)
Quartile 4		-0.760/0.468* (0.158)	-0.303/0.738 (0.271)	-0.548/0.578 (0.222)	
Openness	0.060/1.062 (0.049)				
Quartile 1			-0.187/0.829 (0.259)	-0.206/0.814 (0.227)	-0.219/0.803 (0.269)
Quartile 2		0.187/1.206 (0.376)		-0.018/0.982 (0.307)	-0.032/0.969 (0.349)
Quartile 3		0.206/1.228 (0.342)	0.018/1.018 (0.319)		-0.014/0.987 (0.312)
Quartile 4		0.219/1.245 (0.416)	0.032/1.032 (0.372)	0.014/1.014 (0.320)	

Notes: n = 14,496; The covariates have been standardized by: Age (-0.006/0.994), Male (0.725/2.065**), White (0.370/1.448), Black (0.965/2.624), Married (-0.888/0.411***), College Degree (-1.230/0.292***), and Income (0.000/0.999). The coefficients and odds ratios are listed next to the variables.

* p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.26 The Effect of Personality on the Odds of Committing Theft Over \$50 in the Last 12-Months

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Extraversion	0.066/1.068** (0.024)				
Quartile 1			0.278/1.321 (0.263)	-0.150/0.860 (0.157)	-0.482/0.617** (0.109)
Quartile 2		-0.278/0.757 (0.151)		-0.429/0.651* (0.133)	-0.761/0.467*** (0.093)
Quartile 3		0.150/1.162 (0.212)	0.429/1.535* (0.315)		-0.332/0.717 (0.128)
Quartile 4		0.482/1.620** (0.286)	0.761/2.140*** (0.428)	0.332/1.394 (0.248)	
Neuroticism	0.157/1.170*** (0.027)				
Quartile 1			-0.306/0.736 (0.152)	-0.616/0.540** (0.109)	-1.098/0.334*** (0.065)
Quartile 2		0.306/1.358 (0.280)		-0.310/0.734 (0.137)	-0.791/0.453*** (0.081)
Quartile 3		0.616/1.851** (0.374)	0.310/1.363 (0.255)		-0.482/0.618** (0.104)
Quartile 4		1.097/2.997*** (0.584)	0.791/2.206*** (0.395)	0.482/1.619** (0.272)	
Agreeableness	-0.075/0.927** (0.026)				
Quartile 1			0.272/1.312 (0.199)	0.436/1.547 (0.366)	0.459/1.583* (0.368)
Quartile 2		-0.272/0.762 (0.280)		0.165/1.179 (0.274)	0.188/1.206 (0.272)
Quartile 3		-0.436/0.646 (0.153)	-0.165/0.848 (0.197)		0.023/1.023 (0.283)
Quartile 4		-0.459/0.632* (0.147)	-0.188/0.829 (0.187)	-0.023/0.977 (0.271)	

Table 6.26 - Continued

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Conscientiousness	-0.037/0.964 (0.022)				
Quartile 1			0.148/1.160 (0.185)	0.325/1.384 (0.276)	0.318/1.374 (0.256)
Quartile 2		-0.148/0.862 (0.138)		0.177/1.193 (0.249)	0.170/1.185 (0.234)
Quartile 3		-0.325/0.723 (0.144)	-0.177/0.838 (0.175)		-0.007/0.993 (0.228)
Quartile 4		-0.318/0.728 (0.136)	-0.170/0.844 (0.167)	0.007/1.007 (0.231)	
Openness	0.088/1.092** (0.031)				
Quartile 1			-0.272/0.762 (0.154)	-0.450/0.638** (0.111)	-0.515/0.597** (0.119)
Quartile 2		0.272/1.313 (0.266)		-0.178/0.837 (0.162)	-0.243/0.784 (0.169)
Quartile 3		0.450/1.568** (0.272)	0.178/1.194 (0.231)		-0.066/0.936 (0.167)
Quartile 4		0.515/1.674** (0.335)	0.243/1.275 (0.275)	0.066/1.068 (0.190)	

Notes: n = 14,496; The covariates have been standardized by: Age (-0.011/0.989), Male (0.707/2.029***), White (-0.203/0.816), Black (-0.338/0.713), Married (-0.681/0.506***), College Degree (-0.515/0.597**), and Income (0.000/0.999). The coefficients and odds ratios are listed next to the variables.
 * p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.27 The Effect of Personality on the Odds of Committing Theft Under \$50 in the Last 12-Months

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Extraversion	0.027/1.027 (0.015)				
Quartile 1			0.107/1.113 (0.141)	-0.128/0.879 (0.107)	-0.242/0.785* (0.095)
Quartile 2		-0.107/0.898 (0.114)		-0.236/0.790 (0.103)	-0.350/0.705** (0.092)
Quartile 3		0.128/1.137 (0.138)	0.236/1.266 (0.165)		-0.114/0.892 (0.109)
Quartile 4		0.242/1.274* (0.154)	0.350/1.419** (0.184)	0.114/1.120 (0.136)	
Neuroticism	0.075/1.078*** (0.017)				
Quartile 1			-0.035/0.966 (0.121)	-0.272/0.762* (0.095)	-0.552/0.576*** (0.072)
Quartile 2		0.035/1.036 (0.130)		-0.237/0.789 (0.099)	-0.517/0.596*** (0.074)
Quartile 3		0.272/1.313* (0.164)	0.237/1.268 (0.159)		-0.280/0.756* (0.091)
Quartile 4		0.552/1.738*** (0.216)	0.517/1.678*** (0.208)	0.280/1.324* (0.159)	
Agreeableness	-0.037/0.963* (0.018)				
Quartile 1			0.242/1.273* (0.132)	0.276/1.318 (0.201)	0.414/1.513** (0.230)
Quartile 2		-0.242/0.785* (0.081)		0.035/1.035 (0.153)	0.172/1.188 (0.173)
Quartile 3		-0.276/0.758 (0.116)	-0.035/0.966 (0.143)		0.138/1.148 (0.201)
Quartile 4		-0.414/0.661** (0.101)	-0.172/0.842 (0.123)	-0.138/0.871 (0.153)	

Table 6.27 - Continued

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Conscientiousness	-0.104/0.901*** (0.014)				
Quartile 1			0.348/1.417*** (0.151)	0.443/1.558*** (0.202)	0.739/2.093*** (0.275)
Quartile 2		-0.348/0.706*** (0.075)		0.095/1.100 (0.153)	0.390/1.477** (0.209)
Quartile 3		-0.443/0.642*** (0.083)	-0.095/0.909 (0.126)		0.295/1.343 (0.214)
Quartile 4		-0.739/0.478*** (0.063)	-0.390/0.677** (0.096)	-0.295/0.744 (0.118)	
Openness	0.112/1.119*** (0.022)				
Quartile 1			-0.223/0.800 (0.112)	-0.233/0.792 (0.097)	-0.812/0.444*** (0.057)
Quartile 2		0.223/1.250 (0.175)		-0.010/0.990 (0.135)	-0.589/0.555*** (0.078)
Quartile 3		0.233/1.263 (0.154)	0.010/1.010 (0.138)		-0.579/0.561*** (0.065)
Quartile 4		0.812/2.253*** (0.288)	0.589/1.802*** (0.253)	0.579/1.784*** (0.206)	

Notes: n = 14,496; The covariates have been standardized by: Age (-0.101/0.904***), Male (0.712/2.039***), White (0.053/1.055), Black (-0.154/0.857), Married (-0.611/0.543***), College Degree (-0.021/0.979), and Income (0.000/0.999**). The coefficients and odds ratios are listed next to the variables.
 * p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.28 The Effect of Personality on the Odds of Committing Credit Card Fraud in the Last 12-Months

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Extraversion	-0.033/0.968 (0.035)				
Quartile 1			0.545/1.725 (0.543)	0.482/1.620 (0.516)	0.061/1.063 (0.310)
Quartile 2		-0.545/0.580 (0.182)		-0.063/0.939 (0.346)	-0.484/0.616 (0.213)
Quartile 3		-0.482/0.617 (0.197)	0.063/1.065 (0.393)		-0.421/0.656 (0.224)
Quartile 4		-0.061/0.941 (0.274)	0.484/1.623 (0.561)	0.421/1.524 (0.519)	
Neuroticism	0.166/1.181*** (0.046)				
Quartile 1			-0.064/0.938 (0.379)	-0.669/0.512 (0.188)	-1.340/0.262*** (0.090)
Quartile 2		0.064/1.066 (0.431)		-0.605/0.546 (0.193)	-1.276/0.279*** (0.092)
Quartile 3		0.669/1.953 (0.718)	0.605/1.832 (0.647)		-0.671/0.511** (0.139)
Quartile 4		1.340/3.820*** (1.317)	1.276/3.582*** (1.176)	0.671/1.956** (0.531)	
Agreeableness	0.021/1.021 (0.050)				
Quartile 1			-0.096/0.908 (0.379)	-0.499/0.607 (0.215)	-0.262/0.769 (0.301)
Quartile 2		0.096/1.101 (0.295)		-0.403/0.668 (0.229)	-0.166/0.847 (0.319)
Quartile 3		0.499/1.647 (0.584)	0.403/1.496 (0.512)		0.237/1.268 (0.530)
Quartile 4		0.262/1.300 (0.509)	0.166/1.180 (0.444)	-0.237/0.789 (0.330)	

Table 6.28 - Continued

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Conscientiousness	-0.110/0.896** (0.034)				
Quartile 1			0.434/1.544 (0.413)	0.810/2.248* (0.839)	0.670/1.955* (0.639)
Quartile 2		-0.434/0.648 (0.174)		0.376/1.457 (0.580)	0.236/1.266 (0.453)
Quartile 3		-0.811/0.445* (0.166)	-0.376/0.687 (0.273)		-0.140/0.869 (0.383)
Quartile 4		-0.670/0.512* (0.167)	-0.236/0.790 (0.283)	0.140/1.150 (0.506)	
Openness	0.036/1.037 (0.049)				
Quartile 1			0.014/1.014 (0.334)	-0.190/0.827 (0.227)	0.264/1.303 (0.474)
Quartile 2		-0.014/0.986 (0.325)		-0.204/0.816 (0.270)	0.251/1.285 (0.520)
Quartile 3		0.190/1.209 (0.332)	0.204/1.226 (0.405)		0.455/1.576 (0.545)
Quartile 4		-0.264/0.768 (0.279)	-0.251/0.778 (0.315)	-0.455/0.635 (0.220)	

Notes: n = 14,496; The covariates have been standardized by: Age (-0.059/0.943), Male (0.613/1.846**), White (-0.288/0.750), Black (-0.155/0.857), Married (-0.506/0.603*), College Degree (-1.130/0.323***), and Income (0.000/0.999). The coefficients and odds ratios are listed next to the variables.
 * p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.29 The Effect of Personality on the Odds of Committing Check Fraud in the Last 12-Months

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Extraversion	0.068/1.071** (0.023)				
Quartile 1			0.208/1.231 (0.235)	-0.142/0.867 (0.155)	-0.678/0.508*** (0.085)
Quartile 2		-0.208/0.812 (0.155)		-0.350/0.704 (0.139)	-0.886/0.412*** (0.077)
Quartile 3		0.142/1.153 (0.206)	0.350/1.419 (0.280)		-0.536/0.585** (0.099)
Quartile 4		0.678/1.970*** (0.332)	0.886/2.426*** (0.455)	0.536/1.709** (0.289)	
Neuroticism	0.108/1.114*** (0.025)				
Quartile 1			0.191/1.211 (0.244)	-0.380/0.684* (0.125)	-0.632/0.532*** (0.096)
Quartile 2		-0.191/0.826 (0.167)		-0.571/0.565** (0.105)	-0.823/0.439*** (0.080)
Quartile 3		0.380/1.462* (0.268)	0.571/1.770** (0.329)		-0.252/0.777 (0.121)
Quartile 4		0.632/1.881*** (0.340)	0.823/2.278*** (0.416)	0.252/1.287 (0.200)	
Agreeableness	-0.044/0.957 (0.026)				
Quartile 1			0.191/1.211 (0.179)	0.376/1.456 (0.318)	0.262/1.300 (0.275)
Quartile 2		-0.191/0.826 (0.122)		0.185/1.203 (0.253)	0.071/1.073 (0.216)
Quartile 3		-0.376/0.687 (0.150)	-0.185/0.831 (0.175)		-0.114/0.892 (0.220)
Quartile 4		-0.262/0.769 (0.163)	-0.071/0.932 (0.187)	0.114/1.121 (0.276)	

Table 6.29 - Continued

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Conscientiousness	-0.087/0.917*** (0.020)				
Quartile 1			0.357/1.429* (0.220)	0.384/1.468* (0.267)	0.632/1.882*** (0.340)
Quartile 2		-0.357/0.700* (0.107)		0.027/1.027 (0.200)	0.275/1.317 (0.257)
Quartile 3		-0.384/0.681* (0.124)	-0.027/0.973 (0.189)		0.248/1.282 (0.278)
Quartile 4		-0.632/0.531*** (0.096)	-0.275/0.759 (0.148)	-0.248/0.780 (0.169)	
Openness	0.018/1.019 (0.028)				
Quartile 1			-0.124/0.883 (0.158)	-0.197/0.821 (0.128)	0.122/1.130 (0.233)
Quartile 2		0.124/1.132 (0.203)		-0.073/0.930 (0.166)	0.246/1.279 (0.284)
Quartile 3		0.197/1.218 (0.190)	0.073/1.076 (0.192)		0.319/1.375 (0.268)
Quartile 4		-0.122/0.885 (0.182)	-0.246/0.782 (0.174)	-0.319/0.727 (0.142)	

Notes: n = 14,496; The covariates have been standardized by: Age (-0.048/0.953), Male (-0.282/0.754*), White (-0.330/0.719), Black (0.158/1.171), Married (-0.302/0.740*), College Degree (-0.697/0.498***), and Income (0.000/0.999). The coefficients and odds ratios are listed next to the variables.

* p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.30 The Effect of Personality on the Odds of Committing Vandalism in the Last 12-Months

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Extraversion	0.072/1.074*** (0.016)				
Quartile 1			-0.130/0.878 (0.111)	-0.262/0.769* (0.097)	-0.562/0.570*** (0.070)
Quartile 2		0.130/1.138 (0.144)		-0.133/0.876 (0.113)	-0.432/0.649*** (0.082)
Quartile 3		0.262/1.300* (0.164)	0.133/1.142 (0.148)		-0.300/0.741* (0.091)
Quartile 4		0.562/1.754*** (0.216)	0.432/1.541*** (0.195)	0.300/1.349* (0.165)	
Neuroticism	0.181/1.198*** (0.019)				
Quartile 1			-0.225/0.799 (0.112)	-0.641/0.527*** (0.071)	-1.268/0.281*** (0.037)
Quartile 2		0.225/1.252 (0.176)		-0.416/0.660*** (0.085)	-1.043/0.352*** (0.043)
Quartile 3		0.641/1.898*** (0.257)	0.416/1.516*** (0.195)		-0.627/0.534*** (0.060)
Quartile 4		1.268/3.554*** (0.462)	1.043/2.838*** (0.347)	0.627/1.873*** (0.211)	
Agreeableness	-0.048/0.953** (0.018)				
Quartile 1			0.221/1.247* (0.129)	0.294/1.342 (0.212)	0.208/1.231 (0.185)
Quartile 2		-0.221/0.802* (0.083)		0.074/1.077 (0.168)	-0.013/0.987 (0.144)
Quartile 3		-0.294/1.898 (0.257)	-0.074/0.929 (0.145)		-0.087/0.917 (0.165)
Quartile 4		-0.208/0.812 (0.122)	0.013/1.013 (0.148)	0.087/1.090 (0.196)	

Table 6.30 - Continued

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Conscientiousness	-0.087/0.917*** (0.917)				
Quartile 1			0.416/1.516*** (0.165)	0.449/1.567*** (0.208)	0.541/1.718*** (0.216)
Quartile 2		-0.416/0.660*** (0.072)		0.033/1.034 (0.148)	0.125/1.133 (0.157)
Quartile 3		-0.449/0.638*** (0.085)	-0.033/0.968 (0.139)		0.092/1.096 (0.172)
Quartile 4		-0.541/0.582*** (0.073)	-0.125/0.882 (0.122)	-0.092/0.912 (0.143)	
Openness	0.065/1.067*** (0.020)				
Quartile 1			-0.213/0.808 (0.107)	-0.168/0.845 (0.100)	-0.394/0.675** (0.088)
Quartile 2		0.213/1.237 (0.164)		0.045/1.046 (0.138)	-0.181/0.835 (0.119)
Quartile 3		0.168/1.183 (0.139)	-0.045/0.956 (0.126)		-0.225/0.798 (0.097)
Quartile 4		0.394/1.482** (0.194)	0.181/1.198 (0.171)	0.225/1.253 (0.153)	

Notes: n = 14,490; The covariates have been standardized by: Age (-0.153/0.858***), Male (1.020/2.774***), White (-0.393/0.675*), Black (-0.233/0.792), Married (-0.497/0.608***), College Degree (-0.296/0.743**), and Income (0.000/0.999***). The coefficients and odds ratios are listed next to the variables.
 * p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.31 The Effect of Personality on the Odds of Selling Drugs in the Last 12-Months

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Extraversion	0.067/1.069*** (0.016)				
Quartile 1			-0.136/0.873 (0.111)	-0.338/0.713** (0.090)	-0.508/0.602*** (0.076)
Quartile 2		0.136/1.145 (0.146)		-0.203/0.816 (0.105)	-0.372/0.689** (0.089)
Quartile 3		0.338/1.403** (0.177)	0.203/1.225 (0.158)		-0.170/0.844 (0.105)
Quartile 4		0.508/1.662*** (0.210)	0.372/1.451** (0.187)	0.170/1.185 (0.147)	
Neuroticism	0.111/1.118*** (0.018)				
Quartile 1			-0.174/0.840 (0.112)	-0.482/0.618*** (0.081)	-0.832/0.435*** (0.057)
Quartile 2		0.174/1.191 (0.159)		-0.307/0.735** (0.092)	-0.658/0.518*** (0.064)
Quartile 3		0.482/1.619*** (0.213)	0.307/1.360** (0.170)		-0.351/0.704** (0.083)
Quartile 4		0.832/2.299*** (0.301)	0.658/1.931*** (0.240)	0.351/1.420** (0.167)	
Agreeableness	-0.054/0.947** (0.018)				
Quartile 1			0.129/1.137 (0.117)	0.188/1.207 (0.195)	0.252/1.286 (0.209)
Quartile 2		-0.129/0.879 (0.090)		0.060/1.062 (0.168)	0.123/1.131 (0.179)
Quartile 3		-0.188/0.828 (0.134)	-0.060/0.942 (0.149)		0.063/1.065 (0.205)
Quartile 4		-0.252/0.778 (0.127)	-0.123/0.884 (0.140)	-0.063/0.939 (0.181)	

Table 6.31 - Continued

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Conscientiousness	-0.091/0.913*** (0.014)				
Quartile 1			0.259/1.295** (0.137)	0.687/1.989*** (0.284)	0.623/1.865*** (0.248)
Quartile 2		-0.259/0.772** (0.082)		0.429/1.535** (0.229)	0.365/1.440** (0.202)
Quartile 3		-0.687/0.503*** (0.072)	-0.429/0.651** (0.097)		-0.064/0.938 (0.159)
Quartile 4		-0.623/0.536*** (0.071)	-0.365/0.694** (0.098)	0.064/1.066 (0.181)	
Openness	0.073/1.076*** (0.021)				
Quartile 1			0.080/1.084 (0.154)	-0.258/0.773* (0.089)	-0.361/0.697** (0.093)
Quartile 2		-0.080/0.923 (0.131)		-0.338/0.713* (0.100)	-0.441/0.643** (0.099)
Quartile 3		0.258/1.294* (0.150)	0.338/1.403* (0.196)		-0.103/0.902 (0.110)
Quartile 4		0.361/1.434** (0.191)	0.441/1.555** (0.238)	0.103/1.108 (0.136)	

Notes: n = 14,495; The covariates have been standardized by: Age (-0.128/0.880***), Male (1.230/3.421***), White (0.102/1.108), Black (0.261/1.299), Married (-0.781/0.458***), College Degree (-1.030/0.357***), and Income (0.000/0.999***). The coefficients and odds ratios are listed next to the variables.
 * p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.32 The Effect of Personality on the Odds of Dealing in Stolen Property in the Last 12-Months

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Extraversion	0.086/1.090*** (0.020)				
Quartile 1			-0.447/0.639** (0.098)	-0.515/0.597*** (0.093)	-0.683/0.505*** (0.080)
Quartile 2		0.447/1.564** (0.239)		-0.068/0.934 (0.139)	-0.236/0.790 (0.120)
Quartile 3		0.515/1.674*** (0.261)	0.068/1.070 (0.159)		-0.168/0.845 (0.127)
Quartile 4		0.683/1.981*** (0.314)	0.236/1.266 (0.192)	0.168/1.183 (0.177)	
Neuroticism	0.106/1.112*** (0.022)				
Quartile 1			-0.209/0.812 (0.132)	-0.562/0.570*** (0.091)	-0.842/0.431*** (0.069)
Quartile 2		0.209/1.232 (0.200)		-0.354/0.702* (0.104)	-0.633/0.531*** (0.080)
Quartile 3		0.562/1.755*** (0.279)	0.354/1.424* (0.211)		-0.279/0.756* (0.107)
Quartile 4		0.842/2.321*** (0.374)	0.633/1.883*** (0.283)	0.279/1.322* (0.187)	
Agreeableness	-0.100/0.905*** (0.020)				
Quartile 1			0.383/1.467** (0.180)	0.426/1.531* (0.297)	0.890/2.436*** (0.549)
Quartile 2		-0.383/0.682** (0.084)		0.043/1.043 (0.202)	0.507/1.660* (0.372)
Quartile 3		-0.426/0.653* (0.127)	-0.043/0.958 (0.186)		0.464/1.591 (0.414)
Quartile 4		-0.890/0.411*** (0.093)	-0.507/0.602 (0.135)	-0.464/0.629 (0.164)	

Table 6.32 - Continued

	Full Variable Coeff./OR	Reference Group Quartile 1 Coeff./OR	Reference Group Quartile 2 Coeff./OR	Reference Group Quartile 3 Coeff./OR	Reference Group Quartile 4 Coeff./OR
Conscientiousness	-0.099/0.905*** (0.017)				
Quartile 1			0.370/1.448** (0.186)	0.564/1.758*** (0.287)	0.773/2.166*** (0.363)
Quartile 2		-0.370/0.690** (0.089)		0.194/1.214 (0.210)	0.402/1.495* (0.266)
Quartile 3		-0.564/0.569*** (0.093)	-0.194/0.824 (0.142)		0.208/1.232 (0.251)
Quartile 4		-0.773/0.462*** (0.77)	-0.402/0.669* (0.119)	-0.208/0.812 (0.165)	
Openness	0.059/1.061** (0.025)				
Quartile 1			-0.016/0.984 (0.167)	-0.443/0.642*** (0.088)	-0.394/0.675* (0.112)
Quartile 2		0.016/1.016 (0.173)		-0.427/0.653** (0.108)	-0.377/0.686* (0.128)
Quartile 3		0.443/1.557*** (0.214)	0.427/1.532** (0.252)		0.049/1.050 (0.158)
Quartile 4		0.394/1.482* (0.245)	0.377/1.459* (0.273)	-0.049/0.952 (0.143)	

Notes: n = 14,496; The covariates have been standardized by: Age (-0.120/0.887***), Male (1.159/3.185***), White (-0.390/0.677), Black (0.237/1.268), Married (-0.567/0.567***), College Degree (-0.874/0.417***), and Income (0.000/0.999). The coefficients and odds ratios are listed next to the variables.
 * p ≤ 0.05, ** p ≤ 0.01, *** p ≤ 0.001

Table 6.33 Summary Table on the Effects of Personality on Criminal Outcomes

	<u>Extraversion</u>	<u>Neuroticism</u>	<u>Agreeableness</u>	<u>Conscientiousness</u>	<u>Openness</u>
Arrest	+	+	-		+
Incarceration	+	+	-		
Robbery	+	+	-		
Fighting	+	+	-	-	
Serious Fighting	+	+	-	-	+
Burglary		+			
Theft Over \$50	+	+	-		+
Theft Under \$50		+	-	-	+
Credit Card Fraud		+		-	
Check Fraud	+	+		-	
Vandalism	+	+	-	-	+
Drug Sale	+	+	-	-	+
Dealing in Stolen Property	+	+	-	-	+

Notes: + indicates a significant & positive relationship, - indicates a significant & negative relationship, no sign indicates that the relationship was not significant.

CHAPTER 7

DISCUSSION

The final chapter of this dissertation has four aims. The first is to summarize the results of the current study and discuss these results in the context of the current literature. The second involves the discussion of policy implications that could be derived from this dissertation. The third is to note some of the limitations of the current study. The fourth aim of this final chapter is to emphasize that more research should be done in the area of personality in the field of criminology. As such, directions for future research will be discussed.

7.1 Summary of Results

In Chapter 6 (RESULTS) a myriad of tables were presented that demonstrated the results of this study. Additionally, throughout the previous chapter interpretations were given for each relationship. In an effort to emphasize some of the more important findings, a summary of the results will be provided. First, the research questions pertaining to the effects of personality on drug use will be discussed, followed by the research questions investigating the effects of personality on criminal outcomes.

The first research question asks whether there are specific relationships between the personality traits in the five-factor model and different types of drug use. To simply answer this question, yes there were significant relationships between personality traits and some types of drug use. Overall, there are 43 significant relationships between different personality traits and drug use outcomes. More specifically, extraversion has significant relationships with 10 types of drug use (9 positive relationships and 1 negative relationship), neuroticism has significant relationships with 10 types of drug use (all positive relationships), agreeableness has significant relationships with five types of drug use (4 negative relationships and 1 positive relationship),

conscientiousness has significant relationships with 11 types of drug use (all negative relationships), and openness to experience has significant relationships with seven types of drug use (6 positive relationships and 1 negative relationship).

The current personality and drug use literature consistently finds that high levels of neuroticism increase the risk of drug use, while high levels of agreeableness and conscientiousness decrease the use of drugs (Ottomanelli, 1994; Chassin, Flora, & King, 2004; Terracciano & Costa, 2004; Kornør & Nordvik, 2007; Malouff et al., 2007; Terracciano et al., 2008; Turiano et al., 2012; Cauchi & DeGiovanni, 2015; Mercado et al., 2016; Novais, Pombo, & Ismail, 2016). Additionally, extraversion and openness to experience have mixed results that differ based on the types of drugs measured (Walton & Roberts, 2004; Dubey et al., 2010; Homayouni, 2011; Mercado et al., 2016). While this dissertation does find support for the general conclusions of the literature, its findings do differ somewhat. As seen above, all five of the personality traits studied have some significant relationships with different forms of drug use. According to the literature, this study should have found more significant relationships amongst neuroticism, agreeableness, and conscientiousness. This study actually finds that extraversion, neuroticism, and conscientiousness have the most significant relationships. In fact, agreeableness (which is highly significant in the literature) has the least number of significant drug relationships in this study.

Furthermore, within the current literature extraversion and openness to experience have inconsistent results (Walton & Roberts, 2004; Dubey et al., 2010; Homayouni, 2011; Mercado et al., 2016). In this study openness to experience seems to match that description, but extraversion does not. Extraversion has significant relationships with almost all of the different types of drug

use, and the relationships are almost exclusively positive. As such, the results for extraversion are somewhat different than the current literature would suggest.

The main takeaway from the first research question is that while this study finds many specific relationships between the personality traits in the five-factor model and varying types of drug use, it reveals some inconsistencies in the current literature. For example, this dissertation has highlighted the importance of extraversion, which has not been consistently linked to increases in drug use by previous studies (Walton & Roberts, 2004; Dubey et al., 2010; Homayouni, 2011; Mercado et al., 2016). Additionally, this work has found less of an impact from agreeableness than the literature would assert (Ottomanelli, 1994; Chassin, Flora, & King, 2004; Terracciano & Costa, 2004; Kornør & Nordvik, 2007; Malouff et al., 2007; Terracciano et al., 2008; Turiano et al., 2012; Cauchi & DeGiovanni, 2015; Mercado et al., 2016; Novais, Pombo, & Ismail, 2016).

The second research question asks whether the effects of personality on drug use vary by the type of drug measured. The answer to this question is also yes because the relationships between the personality traits and drugs change when different drugs are measured. Overall we can see that extraversion affects every type of drug use except nicotine dependence and favorite drug dependence. Neuroticism has an effect on every type of drug use except last 12-month alcohol use and past 30-day alcohol use. Agreeableness only has an effect on last 12-month alcohol use, last 12-month binge drinking, last 12-month marijuana use, past 30-day alcohol use, and marijuana dependence. Conscientiousness affects every type of drug use except favorite drug dependence. Finally, openness to experience impacts all of the drug types except last 12-month favorite drug use, nicotine dependence, alcohol dependence, marijuana dependence, and favorite drug dependence.

These varying relationships become even more apparent when examining different ways of measuring the same drug. Both alcohol and marijuana are measured three different ways in this dissertation (last 12-month use, past 30-day use, and lifetime dependence), and both reveal differences amongst the measures. With alcohol we see the same personality relationships between last 12-month alcohol use and past 30-day alcohol use, but different personality relationship with alcohol dependence. For last 12-month and past 30-day use we see significant relationships with all the personality traits except neuroticism. However, neuroticism does have a significant effect on alcohol dependence. Additionally, agreeableness and openness to experience are not significant with alcohol dependence even though they were significant with both last 12-month and past 30-day alcohol use.

The marijuana measures differ even more than the alcohol measures. For example, last 12-month marijuana use has significant relationships with all of the personality traits, but past 30-day use is not affected by agreeableness. Marijuana dependence, on the other hand, has a negative relationship with extraversion and a positive relationship with agreeableness. This is a very important finding because no other type of drug use has shown a negative relationship with extraversion or a positive relationship with agreeableness. This is true of both the current study and the current literature (Wells & Stacey, 1976; Bachman & Jones, 1979; Terracciano et al., 2008; Fridberg et al., 2011; Cauchi & DeGiovanni, 2015; Mercado et al., 2016).

Unfortunately, the findings of this research question cannot be fully situated in the current literature because previous studies do not generally discuss their findings in the context of differences. The majority of studies simply state the significant relationships that their work produced, but do not convey that the personality traits studied do not impact the different types of drug use the same way. Through its findings, this dissertation demonstrates that it is essential

to discuss the differences found among personality and drug use relationships. By looking at these differences this study has shown that alcohol and marijuana dependence measures produce different results than regular use measures. This is a critical finding given that most studies utilize varying drug use measures somewhat interchangeably (Andrews & Slade, 2002; Chassin, Flora, & King, 2004; Walton & Roberts, 2004; Anderson et al., 2007; Hopwood et al., 2007; Dubey et al., 2010; Homayouni, 2011; Turiano et al., 2012; Lackner, Unterrainer, & Neubauer, 2013).

For the second research question, there are two main takeaways. The first is that relationships between personality traits and drug use do vary by the type of drug used. This means that moving forward research must study individual drugs (rather than drug use indices), examine a variety of drug use measures (rather than just one or two) and emphasize the differences between the relationships (i.e. neuroticism affects marijuana use, but not alcohol use). The second takeaway is that marijuana dependence is very different than any other type of drug use. As such, it should be carefully examined in future research.

The third research question asks whether there are differences between continuous measures of personality traits and quartile measures in regard to drug use. The results indicate that there are differences between these types of measures. When examining the different types of models in each table, it was quite common to see that the continuous measure of personality was significant, but not all of the quartiles were significantly different from one another. In this situation the continuous measure is somewhat misleading because the interpretation of these continuous variables indicate that as an individual's level of personality increases, the drug use being studied would change in a linear fashion. On the other hand, the quartile measures indicate the possibility of non-linear relationships.

One type of non-linearity that seemed to emerge was one in which the first quartile was significantly different from the fourth, but the second and third were not significantly different. This implies that individuals at the top and bottom level of a personality trait are significantly different in terms of the drug being studied, but there are no differences for those in the middle of that personality trait. Another common pattern was for there to be no differences between first and second quartiles or the third and fourth quartiles, but differences elsewhere. This suggests that individuals in the bottom half of a personality trait are similar to each other in the context of the drug being studied, but are different from those in the top half. Additionally, it was also common to see differences between quartiles up until a certain level, then the effects plateau.

The main takeaway for the third research question is that there are differences between quartile and continuous measures of personality traits. These results also suggest that the continuous measure is somewhat misleading. As such, researchers should start testing personality traits at the quartile or percentile level to be able to know more specifically how these personality traits impact outcomes such as substance use. To date only one study in the current literature has examined the effect of personality traits at the percentile level (Ottomanelli, 1994), but based on the results of this dissertation this is something that researchers should focus on.

The fourth research question asks whether there are specific relationships between the personality traits in the five-factor model and different types of criminal outcomes. Again, the answer to this question is yes. Overall there are 48 significant relationships between different personality traits and criminal outcomes. More specifically, extraversion has significant relationships with 10 types of crime (all positive), neuroticism has significant relationships with 13 types of crime (all positive), agreeableness has significant relationships with 10 types of crime (all negative), conscientiousness has significant relationships with eight types of crime (all

negative), and openness to experience has significant relationships with seven types of crime (all positive).

The personality and crime literature is still very new, thus we cannot make too many generalizations about this small body of literature. With that being said, the patterns that are beginning to emerge are similar to those in the drug literature, high levels of neuroticism increase crime, while high levels of agreeableness and conscientiousness decrease crime (Caspi et al., 1994; Heaven, 1996; Miller, Lynam & Leukefeld, 2003; Lynam et al., 2005; Blickle et al., 2006; Barlas & Egan, 2006; Egan, 2009; Egan & Campbell, 2009; Jones, Miller, & Lynam, 2011; Van Gelder & De Vries, 2012; Muris, Meesters, & Timmermans, 2013; Hosie, Gilbert et al., 2014; Collette, Pakzad, & Bergheul, 2015; Slagt et al., 2015). Additionally, extraversion and openness to experience have mixed results that differ based on the type of crime measured (Zuckerman, 1994; Dennison, Stough & Birgden, 2001; Samuels et al., 2004; Egan, Kavanagh, & Blair, 2005; Thiry, 2012; Becerra-García et al., 2013; Jolliffe, 2013; O’Riordan & O’Connell, 2014). The findings of this dissertation generally support the current state of the literature. However, the current findings do suggest that extraversion is pretty consistently linked to crime, even more so than conscientiousness (which is more prominent in the literature).

For the fourth research question the main takeaway is very similar to that of the first research question. That is, that there are specific relationships between personality traits in the five-factor model and criminal outcomes, but there are some inconsistencies with the literature. As mentioned above, this study finds consistently positive relationships with extraversion, but more inconsistency for conscientiousness than would have been suggested in the literature (Caspi et al., 1994; Heaven, 1996; Miller, Lynam & Leukefeld, 2003; Lynam et al., 2005; Blickle et al., 2006; Barlas & Egan, 2006; Egan, 2009; Egan & Campbell, 2009; Jones, Miller, & Lynam,

2011; Van Gelder & De Vries, 2012; Muris, Meesters, & Timmermans, 2013; Hosie, Gilbert et al., 2014; Collette, Pakzad, & Bergheul, 2015; Slagt et al., 2015).

The fifth research question asks whether the effects of personality on crime vary by the type of crime measured. As with drug use, the answer to this research question is also yes.

Overall we can see that extraversion affects all of the crimes studied except burglary, theft under 50 dollars, and credit card fraud. Neuroticism has an impact on every type of crime.

Agreeableness has a significant relationship with all of the crimes except burglary, credit card fraud, and check fraud. Conscientiousness affects every type of crime measure except arrest, incarceration, robbery, burglary, and theft over 50 dollars. Lastly, openness to experience has an impact on all of the crime measures except incarceration, robbery, fighting, burglary, credit card fraud, and check fraud.

Additionally, there are also varying relationships for specific crimes within the same category of crime. For example, there are three measures of violent crime (robbery, fighting, and serious fighting) and all three have different personality relationships. This is even more apparent when inspecting the property crimes (burglary, theft over \$50, theft under \$50, credit card fraud, and check fraud). All five types of property crime have different personality relationships, even the types of crime that seem very similar, such as theft under and over fifty dollars and credit card and check fraud.

As with research question two, the finding for this research question cannot be easily situated into the current literature because most studies do not discuss the differences in their findings. The findings of this dissertation do suggest that researchers should begin to study these types of differences though. This is especially true because even crimes that seem very similar on the surface showed different personality relationships. As such, the main takeaway of this

research question is that the effect of personality does vary by the type of crime measured, suggesting that researchers should examine specific types of crime separately rather than combining many measures into a crime index.

The sixth research question asks whether there are differences between continuous measures of personality traits and quartile measures in regard to criminal outcomes. The findings for this research question are the same as those for the third research question, thus will not be discussed again.

7.2 Limitations of the Current Study

Although this dissertation empirically investigates some of the gaps in the personality literature, it does have several limitations. Specifically, there are four key limitations in this dissertation.

First, all of the measures used in this dissertation were collected at Wave IV. As such this study would be classified as cross-sectional, which means that temporal order cannot be fully established. However, there is a large body of literature that suggests that personality traits are stable over the life-course, and would be similar regardless of when they were measured (Conley, 1985; Helson & Moane, 1987; McCrae & Costa, 1999; Roberts, Caspi, & Moffitt, 2001; Cobb-Clark & Schurer, 2012). These studies are not implying that an individual's personality never changes, rather they assert that an individual's personality is stable over the life-course relative to others (i.e. adults high in neuroticism were high in neuroticism as children). Thus, if the personality of an individual were more or less stable throughout their entire life-course, measuring personality at the same wave as all of the other variables would not render establishing temporal order impossible.

Second, the personality scales for the traits in the five-factor model are made up of the answers to only four questions. While this certainly does not invalidate the measures, in order to tap into the true nature of each personality trait, more questions need to be asked. With only four questions, it is possible that an individual's true personality level is not accurately being captured, which could affect the estimates of this study.

Third, additional measures of drug use would have been preferred. As previously mentioned, one of the biggest limitations in the personality and drug use literature is that not enough measures of drug use are tested. This is problematic because if only one or two types of drugs are tested we cannot see the nuances in the relationships between personality and drug use. It is possible that neuroticism affects heroin use, but not cocaine use. However, if we only test the effects of one or two drugs in a study we will not see this nuance. While this study does test the effects of personality on more types of drug use than the average study, having information on additional drugs would have improved the study. Little research has explored the effects of personality on drug use such as heroin, cocaine, and methamphetamine (Ottomanelli, 1994; Kornør & Nordvik, 2007; Lejuez, Bornoalova, Reynolds, Daughters, & Curtin, 2007; Prisciandaro, McRae-Clark, Moran-Santa Maria, Hartwell, & Brady, 2011; Sutin, Evans, & Zonderman, 2013; Roncero, Daigre, Barral, Ros-Cucurull, Grau-López, Rodríguez-Cintas, Tarifa, Casas, & Valero, 2014; Cauchi & DeGiovanni, 2015; Hojjat, Golmakani, Bayazi, Mortazavi, Khalili, & Akaberi, 2016; Mercado et al., 2016), so having access to this type of data would have allowed this study to contribute even more to the literature.

Fourth, the majority of the analyses in this study have a sample size of around 14,000. A sample size this large could be artificially affecting the regression estimates, which could lead to type I errors and erroneous conclusions.

7.3 Policy Implications

The results of this dissertation, and the results of previous research, indicate the possible success of one particular policy implication, personality specific treatment programs. As mentioned in Chapter 1 (INTRODUCTION), studying the effects of personality on drug use and criminal involvement could lead to more effective treatment and rehabilitation services. With information about the specific negative outcomes that individuals with certain personality types are more prone to, we could develop treatment programs that are tailored toward that personality trait. Previous studies have already demonstrated that gearing treatment towards specific personality traits can be effective at determining why an individual started using drugs and reducing relapse (Ottomanelli, 1994; McCormick et al., 1998; Comeau, Stewart, & Loba, 2001; Kuntsche, Von Fischer, & Gmel, 2008).

Studies investigating the effects of personality traits outside of the five-factor model have also found that personality specific treatments can have positive outcomes. Puig-Antich (1982), for example, shows that when the depression of aggressive boys improves during treatment, their antisocial behavior also improves (Puig-Antich, 1982). Furthermore, treatment programs that focus on reducing anger have been found to reduce subsequent vengeance (Holbrook, 1997) and aggression (Goldstein, Dovidio, Kalbeitzer, Weil, & Strachan, 2007).

The current literature has discovered that certain personality types use drugs for different reasons (McCormick et al., 1998; Comeau, Stewart, & Loba, 2001; Kuntsche, Von Fischer, & Gmel, 2008) and have varying rates of relapse (Ottomanelli, 1994). By researching the impact of personality on criminal justice outcomes we may be able to create treatment programs aimed at reducing recidivism. For example, it is possible that individuals with specific personality traits are more likely to recidivate or break more rules while incarcerated. If this were the case,

personality assessments could be done on inmates upon their arrival in a facility. The information garnered by those could then be used to develop a risk assessment of how likely that inmate is to recidivate or commit infractions while in custody. Based on this risk assessment the inmate could be placed in a treatment program that suits their individual need.

7.4 Future Direction for Theory and Research

By demonstrating that the personality traits in the five-factor model of personality affect both drug use and criminal outcomes, the findings of this dissertation highlight the importance of personality research in the field of criminology. Unfortunately, criminologists have long ignored the role of personality when developing criminological theories. With more and more studies showing the relevance of personality, it is time for criminology to integrate personality into the field. As such, future research should investigate whether personality traits moderate the relationship between criminological theories and crime (i.e. are individuals with high levels of neuroticism that live in poor neighborhoods more crime prone). If certain personality traits do interact with variables from important criminological theories, we could develop more accurate crime theories and policies. Similarly, studying the way drug use changes over an individual's lifetime and the impact personality has on those changes could lead to new developments in the area of life-course criminology.

Furthermore, research should continue to examine the link between personality traits and outcomes such as drug use and crime. There is very little known about the effects of personality on prescription drug use, which would be incredibly valuable given the public health threat that prescription drug use has become (Turiano et al., 2012; Benotsch, Jeffers, Snipes, Martin, & Koester, 2016). Research should also explore whether certain types of drug use interact with different personality traits to produce particular types of crime. Moreover, all types of

personality traits should be investigated, including traits in other models of personality and traits outside of any major model.

Future research should also continue to study personality in less linear terms. This dissertation provided evidence that continuous measures of personality produce somewhat misleading results when compared to quartile measures. As such this avenue should be further explored. Additionally, researchers should consider whether relationships between personality traits and outcomes such as drug use and criminal involvement are non-linear.

New research is continually pointing to the importance of personality for all types of behavior, including crime (Hay & Meldrum, 2015). As such it is important that the field of criminology begin to not only study personality's effect on crime, but also incorporate these findings into criminological theories.

APPENDIX A

IRB APPROVAL



Office of the Vice President for Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 · FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 04/23/2017

To: Wanda Stanb [REDACTED]

Address: [REDACTED]

Dept.: CRIMINOLOGY AND CRIMINAL JUSTICE

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
Personality, Drug Use, and Criminal Involvement Over the Life-Course

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

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

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

If the project has not been completed by 06/22/2017 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

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

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

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

Cc: Marc Geetz <mgeetz@fsu.edu>, Advisor
HSC No. 2016.18614

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BIOGRAPHICAL SKETCH

Wanda E. Leal

Wanda Leal graduated from Florida State University's College of Criminology and Criminal Justice in the summer 2017 semester after completing her Bachelor's degree, Master's degree, and Ph.D. at this university. Her research interests include drug use and abuse, drug-related policies, life-course criminology, and sports and crime. Her recent publications have appeared in such journals as *Journal of Criminal Justice*, *Crime & Delinquency*, and *Deviant Behavior*. In the fall of 2017, she will join the faculty in the Department of Social Sciences at Texas A&M University – San Antonio.