

THE LINK BETWEEN CRIME SEVERITY AND DRUG AND ALCOHOL  
DEPENDENCE

A thesis presented to the faculty of the Graduate School of Western Carolina University  
in partial fulfillment of the requirements for the degree of Master of Arts in Psychology

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April 2013

## ACKNOWLEDGEMENTS

I would like to thank my committee members and director for their assistance and encouragement. In particular, I would like to thank Norm Hoffmann for granting access to the A.D.A.M. Database and his help with statistical procedures.

I also extend sincere thanks to the following people, without whom this thesis would not have been possible: Abt. Associates, and Dr. Alvin Malesky. Lastly, I offer my warmest regards and thanks to my parents, family, and friends for their continued support.

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## ABSTRACT

## THE LINK BETWEEN CRIME SEVERITY AND DRUG USE

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There are many theories about what causes crime and how crimes may be related to drugs. Goldstein (1985) proposed that there are three ways that drugs and crime interact: economic compulsion, psychopharmacological effects, and systemic crimes. The economic compulsion crime is when an offender commits a crime to obtain money for drugs, while the psychopharmacological effects of drugs may cause a person to have less inhibition and therefore commit a crime. The systemic crime is when a crime happens as a result of the drug lifestyle (such as a robbery that occurs during a drug deal).

The present study focuses on how dependency affects crime severity level. It was hypothesized that those who are dependent on drugs commit nonviolent or substance related crimes, while those who are dependent on alcohol commit crimes that are more violent. It was also asked whether early onset of drug use (before the age of 16) led to more contact with the criminal justice system, and whether early onset of drug use (before age 16) also led to more severe crimes.

Results revealed that those who are dependent on drugs commit more substance related crimes compared to those who are not dependent, and that those who are dependent on alcohol commit crimes that are more violent. It was also found that early drug use (prior to age 16), being dependent on drugs only, alcohol only, and dependent

on both drugs and alcohol led to more arrests. In addition, it was also found that there was no effect of age of onset and charge severity. However, it was found that being dependent on drugs and having 1-3 prior arrests was significantly associated with being charged with a felony offense, while being dependent on alcohol was significantly associated with being charged with a misdemeanor.

These results indicate that more treatment programs are necessary to treat substance dependence rather than punishing dependence by placing offenders in jail or prison.

## CHAPTER ONE: INTRODUCTION

There are many reasons why people commit crimes. One of the most common reasons is related to drug or alcohol use. In 2011, 12.3% of arrests reported to the Federal Bureau of Investigation's (FBI) Uniform Crime Report (UCR) were for drug abuse violations. Another 10.1% of crimes were for larceny-theft, and 9.7% were for driving under the influence (FBI, 2011).

Goldstein (1985) postulated that the three main ways in which drugs and crime are connected are economic compulsion, pharmacological effects from substances, and systemic crime. His postulation of an economic compulsion to commit crime, or crimes to obtain money for drugs, has been both supported and criticized by numerous studies, however, it is currently the most commonly accepted theory about how drugs and crime are connected (Nurco, Hanlon, & Kinlock, 1991; White & Gorman, 2000; Wilson et al., 2001; Bennett & Holloway, 2006). The pharmacological effects from substances may cause a person to become bolder, or have reduced capacity to judge risky situations (Goldstein, 1985). Finally, systemic crimes are crimes that occur because of territorial disputes, or during the sale of drugs (Goldstein, 1985). While Goldstein suggested ways that drugs and crime are connected, others have suggested different ways in which drugs and crime are connected.

There are many ways the drug/crime connection impacts the criminal justice system. One of the biggest implications is the effect that the criminal justice system has on drug control policies. By studying this connection further, legislators would have more

information on which to base their decisions when it comes to drug control policies across the country. The Office of National Drug Control Policy (ONDCP) reports that by providing better treatment to chronic offenders, and those who are dependent on drugs, arrests will dramatically decrease (Kaplan, 2012). By studying drug dependency and how it relates to violent crimes, more specific and effective programs could be initiated. For example, if it is found that those who are dependent on drugs commit crimes that are nonviolent, programs should focus more on the issue of dependence rather than the issues associated with violence.

Also, it is important to look at the age at which people become dependent on drugs or alcohol and start committing crimes. For example, if one becomes dependent on drugs or alcohol and starts committing crimes at an early age, treatment should focus mainly on the dependence, with the focus on lowering recidivism as a secondary task. However, if an individual is committing violent crimes and is not dependent on drugs or alcohol, treatment should instead focus on lowering recidivism, with drug treatment as the secondary task.

The purpose of the present study is to further examine how the age of onset of drug use influences drug dependency and crime rates. Additionally, the present study investigates whether those who are dependent commit crimes that are more or less violent than those who are not dependent. This information could be used to further improve drug treatment programs and rehabilitation centers, as well as give policy makers better guidance when implementing new policies related to substance dependence and crime. This study uses the Arrestee Drug Abuse Monitoring (A.D.A.M.) Database, which comprises of in depth interviews of arrestees within 72 hours of their arrest. The arrestee



is asked questions about past drug use, treatment, and arrests, among other things. Of the 4,749 arrestees that were interviewed, only 3,020 provided urinalysis and had clear crime severity levels.

## CHAPTER TWO: LITERATURE REVIEW

When putting new drug policies into effect, lawmakers have to take many different factors into consideration. Some of these factors include the severity of the crime, the type of drug used, and how effective these policies will be once put into place. Although there is an abundance of research on how drugs and crimes are connected (i.e. Goldstein, 1985; Chaiken & Chaiken, 1990; Nurco, Hanlon, & Kinlock, 1991; Maden, Swinton, & Gunn, 1992; White & Gorman, 2000; Kinlock, O'Grady & Hanlon, 2003; Hallstone, 2006), many policies are not effective in reducing the use or sale of drugs, nor in reducing the number of crimes that are committed while the perpetrator is under the influence of drugs. One of the major reasons drug policies are not effective is because policy makers are unaware of the patterns of drug use and drug distribution (Kleiman, 2004). Effectiveness of a policy is measured by comparing statistics of drug use in the current year to those statistics from previous years (ONDCP, 2011). Another problem is finding participants for studies who are willing to discuss their drug use (Kleiman, 2004).

There are many different types of drug classifications. The most commonly used classification of drugs in the criminal justice system is the Schedules of Controlled Substances, utilized by the Drug Enforcement Agency (DEA). The Schedules of Controlled Substances mainly focuses the following factors: 1) potential for abuse, 2) accepted or potential for medical use, and 3) safety of the drug (DEA, 2011). For example, Schedule I drugs have high potential for abuse, no accepted medical use, and are not safe to use. Examples of these drugs include heroin, LSD, and ecstasy. As Schedules continue (up to Schedule V), there is less potential for abuse, more accepted

medical use, and the drugs are generally safe to use. For example, drugs in Schedule V consist primarily of limited quantities of narcotics. An example would be cough medicines that do not have more than 200 milligrams of codeine, such as Robitussin AC (DEA, 2011).

### **Diagnoses**

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000), dependence on a drug is determined by meeting three or more of the following criteria occurring at any time within a 12 month period: tolerance, withdrawal, inability to cut down on the drug use, a great deal of time spent using the drug(s), continued use despite knowledge of physical and psychological problems, social, occupational, and recreational activities given up or cut down, and a lot of time is spent on activities that facilitate obtaining the drug. Substance abuse is defined by the DSM-IV-TR (2000) as a maladaptive pattern of substance use that leads to one of the following: a failure of fulfilling major role obligations at work, home, or school, substance use in places where it is physically hazardous, substance related legal problems, and continued use of the substance despite it having caused personal, social, and occupational problems, occurring repeatedly within a 12 month period, without having met criteria for dependence. Currently, the DSM-IV-TR has separated drugs into alcohol, amphetamines, caffeine related, cannabis, cocaine, hallucinogens, inhalants, nicotine induced, opioids, phencyclidine, sedative, hypnotic or anxiolytic, and polysubstance abuse (APA, 2000).

The American Psychiatric Association is in the process of publishing an updated version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) within the

next year (APA, 2012). In the DSM-V, substance abuse and substance dependence will be combined and called substance use disorder. The criteria will still include items such as recurrent and continuous substance use despite interpersonal, social, or occupational problems, tolerance, and withdrawal, all within a 12 month period. The aspect of compulsion and craving for drugs will be added, while the legal problems criteria will be removed (APA 2012a, 2012b). The larger number of criteria a person meets, the more severe the disorder will be considered. For example, if a person meets 0-1 criterion there will be no diagnosis; if he or she meets 2-3 criteria, the individual will be considered to have mild substance use disorder, 4-5 criteria would equate to moderate substance use disorder, and 6 or more criteria would qualify as severe substance use disorder. Most drug classifications will be staying the same in DSM-V; however, cocaine will be replaced with stimulants related disorder and nicotine induced with tobacco related. In addition anxiolytic, phencyclidine, and amphetamine classifications will be removed and unknown substance disorder will be added. (APA, 2012)

According to the National Survey on Drug Use and Health (NSDUH; 2008), an estimated 20.1 million Americans ages 12 and older were current illicit drug users, with marijuana being the most commonly used drug. This survey also reported that 126.8 million people aged 12 or older reported drinking alcohol in the past month, but only 58.1 million of those people reported binge drinking, and only 17.3 million people reported heavy drinking. Also, 22.2 million people aged 12 or older were diagnosed with substance abuse or dependence according to the DSM-IV-TR, and 3.1 million were diagnosed with dependence on both drugs and alcohol, not including nicotine. The NSDUH also reported that marijuana had the highest level of dependence (4.1 million).

Additionally the NSDUH found that those who used alcohol before age 15 were five times more likely to be classified with alcohol dependence or abuse in their lifetime than those who started drinking at or after age 21.

There are many different screening techniques that can be used to detect dependency on drugs (e.g. Severity of Alcohol Dependence Questionnaire (Stockwell, Murphy, & Hodgson, 1983), Substance Abuse Subtle Screening Inventory (Miller, Woodson, Howell, & Shields, 2009), Drug Use Screening Inventory-Revised (Tarter, 1990), etc.). Hoffman, Hunt, Rhodes, and Riley (2003) developed a six item screening measure that can determine dependency relatively accurately. This measure, called the UNCOPE (Hoffman et al., 2003), assesses dependency with 88% accuracy with the DSM-IV-TR. If a person answers “yes” to three or more questions, that individual is likely to meet DSM-IV-TR criteria for dependence.

### **Age of Onset**

There are many factors that could influence a person to start using drugs or alcohol. One of these factors includes parental substance abuse (Dowden & Brown, 2002). Being around drugs and alcohol from an early age may set an example of how to deal with life problems in a negative way, teaching children it is acceptable to cope with life’s problems through substance use (Dowden & Brown, 2002). Another factor that influences a person to do drugs is self-medication for anxiety disorders, ADHD, mood disorders, and posttraumatic stress disorder (Wilson, Rojas, Haapanen, Duxbury, Steiner, 2001). People affected by these disorders tend to have poor self-regulation and, therefore, poor impulse control, which may lead to impulsively trying to control their negative affective state (Wilson, et al., 2001). These individuals may find that they are better able

to focus, or are not as prone to having mood swings while taking drugs, which may, in turn, lead to dependence on that drug (Wilson, et al., 2001).

Another factor that may affect drug and alcohol dependence is the age when the person started using drugs. There is evidence that suggests those who start using drugs at a younger age are more likely to become dependent on drugs and have more interactions with the criminal justice system throughout their life (Wilson, et. al., 2001; Brunelle, Cousineau, & Brochu, 2005, Slade et. al., 2008; Osho & Grant, 2011). A twin study by Agrawal and colleges (2009) found that those who had their first drink before age 13 were more likely to show alcohol dependence symptoms later in life.

The most commonly used substances by adolescents are marijuana and alcohol (Brunelle, et. al., 2005). Slade, et al. (2008) found that early onset of drug use may lead to more severe forms of drug use and chronic relapse. Further, Slade and colleagues found that heavy drug use in early years may affect maturation and executive functioning, or decision making, and that early drug use may also lead to greater involvement in crimes related to drug use. Research has suggested that young men manifesting a substance use disorder by age 16 are four times more likely to be incarcerated for substance related offenses by early adulthood (Slade et al., 2008). It has also been found that young men who used marijuana by age 16 are also more likely to be incarcerated for non-substance related crimes in adulthood, as well as having greater rates of contact with the criminal justice system later in life (Slade, et al., 2008).

However, Slade and colleagues postulate that duration of substance abuse may be more important than age of onset. For example, those who use drugs over the course of 10-15 years may be more likely to have frequent contact with the criminal justice system

than a 12 year old who uses alcohol once or twice (Slade et al., 2008). If that 12 year old decides to continue using alcohol over a longer period of time, he or she is more likely to be involved with the criminal justice system than someone who does not use it that often (Slade, et al., 2008).

A study by Osho and Grant (2011) revealed that adolescents who use marijuana before age 16 are associated with later substance abuse, juvenile offending, and other problematic outcomes. They also found that adolescent drug users cycle in and out of the criminal justice system, and tend to use more than one drug. In addition, Osho and Grant (2011) found that those who had multiple interactions with the criminal justice system were more likely to use more than one drug. This polysubstance use may lead to more severe dependence, which may lead to further relapse, and therefore continue contact with the criminal justice system

The age of onset of drug use is important to study because earlier drug use can lead to developing dependence at an earlier age (Slade et. al., 2008). Many studies have shown that the earlier the drug use starts, the more likely it is that the individual will have contact with the criminal justice system (Brunelle, Cousineau, & Brochu, 2005; Slade et al., 2008; Osho & Grant, 2011). With the increase of drug use, comes the potential increase for a criminal lifestyle to take hold.

### **Genetic Predisposition**

Another factor that may influence a person to become dependent on drugs or alcohol is a genetic predisposition towards dependence. Studies have shown that having a parent who is dependent on alcohol is associated with five times more likelihood of becoming an alcoholic (Agrawal & Lynskey, 2008). Adoption studies have shown that

adopted children are more likely to become alcoholics or dependent on drugs if their biological parents were dependent, rather than following their environmental factors, which lends credence to the heritability of a dependence gene (Agrawal & Lynskey, 2008). Some studies estimate the heritability of alcohol dependence between 50-70%, with estimates of cannabis dependence being between 34-78% (Agrawal & Lynskey, 2008). This heritability can influence all factors of dependence including age of onset, severity of dependence and withdrawal, and the risk of relapse (Kreek, Neilson, Butelman, & LaForge, 2005).

Other support for the heritability of substance abuse can be seen in those who have comorbid alcohol and illicit drug dependence. Dick et al. (2007), suggest that those who have both alcohol dependence and drug dependency suffer from a more severe version of the genetic predisposition for dependence. Twin studies have also shown that a single genetic factor can account for the comorbidity observed across alcoholics, those who are dependent on drugs, those who have Conduct Disorder, Antisocial Personality Disorder, and disinhibitory personality traits and that this latent factor is highly heritable (Dick, et al., 2007). However, Khokhar, Ferguson, Zhu, and Tindale (2010) reported that substance dependence heritability may be the result of multiple genes with low impact that combine to create the genetic vulnerability of dependency.

Enoch (2012) suggested that the interaction between genes and environment is also important to study. It was reported that while a genetic predisposition to substance abuse and dependence is well studied, early life stress may cause certain genes to be activated to trigger different types of reactions to events (Enoch, 2012). Early life stress can include such things as childhood maltreatment, or traumatic events that may cause an



alteration in the stress circuitry in the brain (Enoch, 2012). This change in stress circuitry may result in different ways of dealing with stressful events throughout life. Others have suggested that heritable influences on alcohol dependence were considerably larger in those who reported age of first drink before age 13 (Agrawal, Sartor, Lynskey, Grant, Pergadia, Grucza, Bucholz, et. al., 2009). This suggests that there is a connection between environment and genetics that influences dependence.

### **Types of Drug Use**

There are many theories on the different ways drugs are used. One popular theory about drug use was put forth by Simpson (2003), who postulated that there are three different types of drug use. The first type of drug use is recreational use, which stems from a lifestyle of fun, hedonism, a rejection of conventional values, and seeking a “buzz.” These individuals tend to use drugs in social settings and do not meet criteria for abuse. The second type of drug use is persistent drug use, which illustrates those who do drugs often but do not meet criteria for dependency. The drug use does not take place every day, and is more about intoxication, and staying intoxicated than doing drugs for the brief “buzz” that is found in the recreational type. People who are persistent drug users are more likely to be multi-drug users who have little to no structure or time commitments, and therefore turn to drugs as a time-filler, or as self-medication for medical or emotional issues (Simpson, 2003). According to Maden, Swinton, and Gunn (1992), most opiate users identify their drug use as “frequent” drug use as opposed to others on stimulants who report their drug use as “weekly” use. This follows the description of persistent drug use by not meeting criteria for dependency, but being more than recreational use. With this type of drug use, individuals may meet criteria for

substance abuse. Finally, Simpson (2003) states that the last group of drug users consists of those that are dependent. These are the users who meet criteria for dependency according to the DSM-IV-TR. Recreational users may ascend to persistent drug users, and persistent drug users may ascend into dependent drug users. Those who are persistent drug users tend to commit more crimes than those who do not use drugs on a regular basis.

Hallstone (2006) posits that there are three stages of drug use. “Druggies,” who start at an early age and allow the drugs to take over their lives, “Weekend Warriors,” who also start using drugs at an early age, but have an important role or mentor to keep them from letting the “druggie lifestyle” from taking over daily life, and the “Grown-ups,” who experiment with drugs but are much more cautious than the Weekend Warriors or Druggies (Hallstone, 2006). Many theories of drug use follow Simpson’s and Hallstone’s models. Almost all models state that users start slow, and then continue to escalate drug use until it has completely taken over their life. Many theories start with some form of experimentation with drugs or alcohol, which leads to chronic use, which, in turn, leads to dependence. Although different models may use different terminology, the epidemiology seems to follow the same path that leads to dependence.

### **Race and Drug Use**

In a survey conducted by the NSDUH (2010), it was found that 10.7% of African Americans had used illicit drugs in the past month. It also found that 9.1% of Whites, and 8.1% of Hispanics had also used illicit drugs in the past month (NSDUH, 2010). However, there is evidence that African Americans are arrested and convicted for drug crimes more often than both Whites and Hispanics. The reason for these possible

discrepancies in arrest rates may be because of the demographics of the area, the extent of community complaints, police allocation of resources, racial profiling, and the ease of making arrests in minority urban areas compared to suburban White areas (Fellner, 2009). It is easier for police to focus on conspicuous drug use, such as drug transactions that are taking place on street corners, as opposed to transactions that are taking place behind closed doors (Fellner, 2009). According to the Uniform Crime Report (UCR) collected by the Federal Bureau of Investigation (FBI), out of 1,301,629 drug abuse violations, 65% were committed by Whites and 33.6% were committed by Blacks (DOJ, 2009). In 2012, the Federal Bureau of Prisons reported that almost 60% of inmates were White, and about 37% were Black for overall crime (DOJ, 2012).

There has also been evidence that indicates that type of drug use varies by ethnic group. Cooper, Fox, and Rodriguez (2012) found that Whites are two times more likely than Latinos and twenty times more likely than Blacks to use methamphetamine. Blacks are also more likely to be sentenced for crack cocaine related crimes, which tend to have harsher penalties, while Latinos are more likely to be sentenced for powder cocaine and heroin related crimes than Whites (Cooper, Fox, & Rodriguez, 2012). While there may be some connection between drug preference and race, there is a clear connection between drug use and crime.

### **The Drug/Crime Connection**

The Bureau of Justice Statistics (BJS) routinely collects data on drug use and crimes. In 2004, BJS found that less than 20% of all crimes were committed to obtain money for drugs. Of those crimes, less than 20% were considered violent; nearly 10% of state crimes and nearly 15% of federal crimes were property crimes. About 25% of both

state and federal crimes were drug related offenses, such as possession or drug dealing, as compared to crimes to get money for drugs. Consistent with other findings in prisons, drug offenders (44%) and property offenders (39%) reported they were under the influence of drugs at the time they committed their crime. In convicted individuals, marijuana (14%) and cocaine, or crack, (11%) were the most common drugs used during the course of an offense. Fifty-five percent of offenders in jails in 2002 reported using drugs in the month prior to their arrest. In prisons, nearly 80% of federal prisoners and 83% of state prisoners reported a history of drug use (BJS, 2004). These statistics provide further evidence that there is a connection between drug use and crime.

According to Goldstein (1985), there are three different ways that drugs and crime are connected. The first connection is the economic compulsive crime, which is crime that is used to generate money to support the individual's drug use. Goldstein (1985) postulates that this type of crime is not motivated by impulses to act out violently, but rather to obtain money to purchase drugs. Examples of economically motivated crimes would be larceny, burglary, theft, and fraud, or obtaining goods that could be sold. Victims of this type of crime are generally prostitutes, other drug dealers, and strangers who venture into the neighborhood (Goldstein, 1985). According to White and Gorman (2000), dependence is a major factor in this type of crime, as opposed to those who only use drugs recreationally. Maden, et. al. (1992) also reported that the most common offense for frequent opiate users was burglary, followed by theft and drug offenses. This shows that the most common offenses for opiate users were offenses that procured money to potentially support drug addiction (Maden, et. al., 1992)

The second type of connection is psychopharmacological (Goldstein, 1985). This is the result of short or long term ingestion of specific substances where the offender becomes irrational, and may exhibit violent behavior. The drug use often effects cognitive functioning, meaning how the drug affects the behavior and thoughts of the person (Goldstein, 1985). Psychopharmacological effects and crime tend to be more prevalent in alcohol literature (White & Gorman, 2000). White and Gorman (2000) suggest that increased aggression may be caused by reduced intellectual functioning, reduced self-awareness, and inaccurate risk assessment, which tends to explain the alcohol/violence relationship. They also state that the social environment may be more of a contributor to violence than any pharmacological effect of any substance, including alcohol.

The third type of drug/crime connection, according to Goldstein (1985), is systemic. This is when crime occurs as part of the system of drug distribution and use. Drug dealers are often perpetrators and victims of assaults, robberies, scams, and homicides from those to whom they are selling (White & Gorman, 2000). Drug sellers also compete for territory and have to watch for subordinates stealing money or drugs, which could lead to crime or violence (White & Gorman, 2000). This type of crime may also include assaults and homicides committed within dealing hierarchies as a means of enforcing normative codes, retaliation by other drug dealers, elimination of informers, and punishment for failing to pay a debt (Goldstein, 1985). However, those who sell drugs privately are less likely to be involved in violent crimes as opposed to those who sell them publicly, such as in parks, or on the streets (Chaiken & Chaiken, 1990).

Bennett & Holloway (2009) conducted a validity study addressing how applicable Goldstein's taxonomy is when applied to different types of crimes and drugs. They found that the typology was underdeveloped, especially the systemic drug/crime connection, which should be expanded to "drug lifestyle" (Bennett & Holloway, 2009). This drug lifestyle would take into account the cultural context of drug use. This context would include the person's desire for hedonism, desperate or immediate need for drugs or cash, disregard for consequences of their actions, their attitude towards money (being unable to save/budget for future use), and a limited approach to decision making (Bennett & Holloway, 2009).

The most supported and well documented drug/crime connection is the economic compulsion crime. Multiple studies have suggested that the most common crimes committed by those who are dependent on drugs are burglary, and other nonviolent crimes, as well as other drug offenses, such as drug distribution (Maden, Swinton, & Gunn, 1992). Hayhurst, Jones, Millar, Pierce, Davies, Weston, & Donmall (2012) found that although drug costs are usually less than expected, there are still several factors that influence commission of economic compulsion crimes. Some of these factors include previous drug use, unemployment, polysubstance use, and risk-taking behaviors.

Kinlock, O'Grady, and Hanlon (2003) also found that there were many nuances to the drug/crime connection. They pointed out that most offenders become involved in a deviant lifestyle, which oftentimes leads to their arrest. They found that the three major deviant lifestyle choices that lead to arrest were use of illegal drugs, commission of property and predatory crimes, as well as involvement in illicit employment that usually involved dealing drugs. By interviewing inmates about their illegal activities in the six

months prior to their arrest, they found that inmates reported that using drugs generally led to more criminal activity compared to those who did not use drugs. They also found that those who committed more crimes started using drugs and committing crimes at an earlier age than those who committed nonviolent crimes. The researchers also found that those who were unemployed tended to depend on drug distribution for income rather than other means.

Kinlock et al. (2003) examined how specific drugs affected crime rates. Those who used cocaine tended to have more drug distribution charges and less violent crime charges. Those dependent on opioids and cocaine dealt drugs to finance their own dependence, while those who used marijuana dealt drugs for profit (Kinlock et. al., 2003). Kinlock and colleagues (2003) postulate that the main reason for this difference is that those who use marijuana tend to be young males who are unemployed.

### **The Connection Between Alcohol, Drugs, and Violence**

Nurco, Hanlon, and Kinlock (1991) reviewed the literature on the drug crime connection as it applied to those who were dependent on narcotics. They found that the majority of crimes committed by heroin users consisted of nonviolent crimes that would produce money (dealing, shoplifting, larceny, fraud, robberies and burglaries). Even those who used other types of drugs, such as stimulants, favored income-generating crimes rather than violent crimes or crimes against persons. This may suggest that while the psychopharmacology of drugs may have some effect on crime rate, it does not necessarily mean that a certain type of crime will be committed.

A more recent review of the literature by Hoaken & Stewart (2003) found that there are many conflicting results in regard to different drug classes, however there seem

to be some common themes. Hoaken & Stewart (2003) reviewed studies on alcohol, cannabis, psychostimulants, benzodiazepines, phencyclidine (PCP), and 3,4-methylenedioxy-N-methylamphetamine (MDMA/ecstasy). They found that alcohol is consistently associated with violence and cannabis is consistently associated with nonviolent crimes. However, psychostimulants, PCP, MDMA, and benzodiazepines have inconsistent findings regarding their connection to violence. Looman and Abracen (2011) also found that while there is support for the connection between alcohol use and violence, it is debatable whether other drugs share this connection.

The reported that the connection between alcohol and violence is one of the most widely researched throughout the world. Several studies were found that consistently supported the connection between alcohol and violence across adults, adolescents, genders, ethnicities, and mentally ill and non-mentally ill alike (Hoaken & Stewart, 2003, Martin, Palepu, Wood, Li, Montaner, & Kerr, 2009). There are several reasons why this connection may be prevalent. Studies have found connections between alcohol and reduced threat detection, cognitive interference, and psychomotor stimulant effects (Hoaken & Stewart, 2003). A number of studies reported interference in the prefrontal cortex of the brain, which is known to be a key component in planning, inhibition, episodic memory, and active monitoring (Hoaken & Stewart, 2003).

The other type of drug that had consistent findings according to Hoaken & Stewart (2003) was cannabis. Numerous studies have shown that those who use cannabis are less likely to be aggressive because cannabis “fosters submissive behavior and suppresses attack behaviors” (Hoaken & Stewart, 2003). Several studies have found that those who use marijuana are most likely to be arrested for a substance related crime



compared to a violent crime or property offense (White & Gorman, 2000, Sevigny & Coontz, 2008.). However, some studies have reported that during the first week of withdrawal from cannabis use, users may show signs of restlessness, irritability, insomnia, and some slight aggression (Kouri, Pope, & Lukas, 1999; Hoaken & Stewart, 2003). However, this slight aggression usually dissipates after the first week of withdrawal (Hoaken & Stewart, 2003). A study by Kouri, Pope, and Lukas (1999) reported that the slight aggression associated with cessation of marijuana use declined to nearly baseline levels 28 days after abstinence began.

The other drug classes that Hoaken and Stewart (2003) conducted the meta-analysis on reported inconsistent findings. Many reported that individual differences, history of violent or aggressive behavior before onset of drug use, dosage, route of administration, and those with preexisting problems with impulse control exhibit more violent behaviors while intoxicated (Hoaken & Stewart, 2003, Kuhns & Clodfelter, 2009). This lack of evidence for other types of drugs is especially surprising given the media portrayal of drugs such as methamphetamine.

Numerous studies have shown that those who use methamphetamine have higher self-reported violent incidents, however, many other factors were also present at the time of the crime (Cartier, Farabee & Prendergast, 2006, Sommers & Baskin, 2006, Tyner & Fremouw, 2008; Martin, et. al., 2009). The main connection between methamphetamine and violence was through psychopharmacological actions. Methamphetamine reportedly had a “disorganizing effect on cognitive functions” that “distorted interpretations of behavior and reduced the ability to use various coping strategies in situations that were perceived as threatening” (Sommers & Baskin, 2006). Another meta-analysis done solely

on recent methamphetamine research reported that, while most studies found a link between aggression and methamphetamine use, often times, the link was weak, or there was no connection at all (Tyner & Fremouw, 2008). A study by Lundholm, Håggard, Möller, Hallqvist, and Thiblin (2012) also showed an elevated risk of violence, however, the risk was not significant.

It has also been suggested that many studies purport to show a causal link between illicit drugs and violence, however, many of these connections are correlational instead of causal (Kuhns & Clodfelter, 2009). Researchers have suggested that the likelihood and magnitude of a psychopharmacological reaction to a drug that results in violent behavior could be affected by many different aspects, including but not limited to purity level of psychoactive ingredient in the drug, tolerance, gender, dosage relative to weight or tolerance, or the presence of other psychoactive ingredients that were mixed with the drug (Kuhns & Clodfelter, 2009).

### **Purpose of Study**

The purpose of the present study is to examine the drug usage/crime relationship, with specific focus on drug dependence, age of onset, and crime severity levels. By examining these factors more closely, it may be possible to determine whether drug or alcohol dependence is associated with an increase in severity of crimes committed by arrestees. By using the UNCOPE questionnaire as an indicator of dependence, it was determined whether those who are dependent on drugs commit crimes of different severity levels than those who are not dependent on drugs.

For this study, crimes have been separated into different offense types that consist of violent crimes, or mostly crimes against persons, nonviolent crimes, or mostly crimes

against property (or crimes of acquisition), and substance crimes, which includes drug related offenses such as possession or drug sales. Examples of violent crimes, or crimes against persons would be such things as murder, rape, or aggravated assault. Examples of nonviolent crimes would be burglary, trespassing, or vandalism. Examples of substance crimes would be possession, distribution, or driving under the influence. For a full list of how crimes were broken down based on severity level, please reference Table 1. The reason these crimes are separated into different groups is based on the Kansas Sentencing Guidelines (2011). More violent crimes receive harsher sentences than property crimes or drug crimes (Schultz, Harmon, Chang, Fenfang, Krusor, Beck, Chavez, et al., 2011).

Table 1: Crimes by Severity Levels

Violent Crimes	Property/Nonviolent Crimes	Substance Crimes
Murder	Blackmail	DUI/DWI
Kidnapping	Arson	Drug Sale
Sexual Assault/Rape	Flight/Escape	Drug Possession
Domestic Battery	Burglary	Possession of Alcohol
Manslaughter	Damage/Destroyed Property	by a Minor
Robbery	Fraud	Liquor
Aggravated Assault	Theft	Under the Influence
Other Assault	Stolen Vehicle	of a Substance
Other Crimes Against Persons	Stolen Property	
	Trespassing	
	Public/Peace Disturbance	

A potential implication of studying how dependency and crime severity interact would be for future drug control policies. By examining the connection between dependency and crime, legislators would have more information to determine drug

treatment options. By studying drug dependency and how that relates to violent crimes, more specific programs could be initiated. For example, if it is found that those who are dependent on drugs commit crimes that are less violent, programs should be more focused on the dependency aspect rather than violence issues.

It is also important to look at the age at which people become dependent on drugs or alcohol and start committing crimes. For example, if one becomes dependent on drugs or alcohol and starts committing crimes at an early age, treatment should focus mainly on dependence, which may cause less chronic relapse, which may, in turn, lower recidivism rates. However, if adolescents start committing violent crimes and are not dependent on substances, treatment should instead focus on lowering recidivism, with drug treatment as the secondary task. Some treatment programs that focus on harm reduction and personality centered techniques to reduce drug use and recidivism are already in place (Ritter & Cameron, 2006; Conrad, Castellanos, & Mackie, 2008). Other studies have shown that drug courts may be able to reduce recidivism rates from 50% to 38% after participants complete the program (Mitchell, Wilson, Eggers, & MacKenzie, 2012).

The following hypotheses have been made:

1A) Those individuals who are dependent on drugs, according to the UNCOPE, will be more likely to have committed crimes that are not violent, such as property crimes or substance abuse crimes, than those who are not dependent. Although there have been studies to test this hypothesis (i.e. Maden, Swinton, & Gunn, 1992, Simpson, 2003, Hayhurst et. al., 2012), the connection between drug dependence and crime severity has never been tested in a correctional setting with urinalysis to verify drug use. Although arrestees were asked about specific drug use in the A.D.A.M. interview, there were not

enough participants in each subgroup to qualify for significance. For this hypothesis, a multinomial regression was run, covarying out for age and race. The reason age was covaried out is because it has been shown that those who are younger are more likely to commit violent crimes than those who are older (Osho & Grant, 2011). Also, studies have shown that, although Whites are just as likely, if not more likely to commit crimes, Blacks are proportionally arrested more often, especially for crimes that involve illegal substances (Fellner, 2009).

1B) Those individuals who are dependent on drugs, according to the UNCOPE, will be more likely to have committed crimes that are not violent, such as property crimes or substance abuse crimes, than those who are not dependent. However, different drugs may cause different behavioral outcomes (Hoaken & Stewart, 2003; Kinlock et. al., 2003; Bennet & Holloway, 2006). For that reason, those drugs that are perceived as having a connection to violence, such as crack, rock, or powder cocaine, and methamphetamine will be excluded from the sample. Although the literature is inconsistent concerning the connection between psychostimulants and violence, those drugs may be considered a confounding variable (Hoaken & Stewart, 2003; Cartier et. al., 2006; Sommers & Baskin, 2006; Tyner & Fremouw, 2008, Martin et. al., 2009). A Chi-square test for independence was conducted excluding those who reported crack, rock, or powder cocaine, and methamphetamine use.

2) Those who are dependent on alcohol according to the UNCOPE will be more likely to have committed crimes that are more violent, such as crimes against persons as opposed to crimes against property, than those who are not dependent (White & Gorman, 2000; Hoaken & Stewart, 2003; Martin et. al., 2009; Osho & Grant, 2011). Again, although this

hypothesis has been tested before, it is useful to add to the existing data from one of the most recent datasets available. Also, the focus on alcohol dependence and crime severity level has never been tested. This may provide some direction for future drug treatment policies both in and out of prison. For this hypothesis, a multinomial regression was run, again covarying out for age and race.

The following research questions are also being asked:

- 1) There is an abundance of research hypothesizing that those who use drugs earlier are likely to have more contact with the criminal justice system and to become dependent, rather than those who begin using drugs later in life (i.e. Wilson, et. al., 2001; Brunelle et al., 2005; Slade et al., 2008; Osho & Grant, 2011). Therefore, the first research question is: does early use increase an individual's crime rates causing more contact with the criminal justice system? The reason age 16 or earlier was considered early drug use was due to the studies by Slade et al. (2008) and Osho and Grant (2011), stating that those who begin using drugs earlier in life have more contact with the criminal justice system later in life. A twin study by Agrawal et. al. (2009) also suggests that those who have an earlier age using alcohol are more likely to experience dependence when they grow older. For this research question, multiple regression analyses were conducted.
- 2) Finally the following question was examined: Does early drug use onset (before age 16) increase the severity of the crime? The reason researchers looked at age 16 or younger is due to the studies by Wilson, et. al., (2001), Brunelle et. al., (2005), Slade, et. al. (2008), and Osho & Grant (2011). Several of these studies state that those who use drugs earlier are more likely to become involved in the criminal justice system and have more chronic and severe forms of drug use and relapse. Those who start using drugs

earlier are more likely to become dependent and tend to have poor impulse control and self-regulation (Wilson et. al., 2001; Agrawal, et. al., 2009). Previous research has found that predisposing factors such as poor impulse control, type of drug used, and a tendency towards aggression could all contribute to violent crime occurring. For this research question, a logistic regression was conducted.

## CHAPTER THREE: METHODS

### **Participants**

The Arrestee Drug Abuse Monitoring (A.D.A.M.) database is based on an extensive structured interview commissioned by the National Institute of Justice and sponsored by the Office of National Drug Control Policy, and conducted by Abt Associates, Inc., a firm that conducts research in several different disciplines, including education, environment and climate change, health, and agriculture. This arrestee interview provides information not only on a micro level (what drugs the person has recently used, how they paid for them, etc.), but also on a macro level (following drug trends, providing information for future drug policies, etc.). By using these data, researchers can potentially predict what drug trends may happen in the future, or get a closer look at drug trends across the country.

Arrestees from several major cities, including Atlanta, GA, Charlotte, NC, Chicago, IL, Denver, CO, Indianapolis, IN, Minneapolis, MN, New York, NY, Portland, OR, Sacramento, CA, and Washington, DC were approached within 48 hours of arrest and were asked to participate in an extensive structured interview about past drug use. Since these cities are across the continental United States, it is a good representative national sample of drug trends across the country.

A total of 4,749 participants completed the survey; however, only 4,182 provided urinalysis. Previous studies have found that over 90% of self-reported drug use matched up with positive urinalysis drug screens (Taylor & Bennett, 1999). Almost 8% of participants underreported drug use (claimed no drug use when the urinalysis was



positive) and almost 2% overreported drug use (claimed drug use when the urinalysis was negative) (Taylor & Bennett, 1999). Only those who completed both the survey and provided a urine sample to verify self-reported drug use were included in the sample. Those with unclear crime severity levels were also culled out of the study to make the sample more precise.

All of the participants were males between the ages of 18 to 65 with a mean age of 33.71 ( $SD = 11.8$ ). The majority of the sample was Black (54.1%), followed by White (27.6%), Hispanic (15.1%), and those who identified as “Other” (3.3%). According to the 2011 UCR, 69.2% of arrestees across the United States were White, 28.4% were Black, and 2.4% were classified as “other” (FBI, 2011). For further specifics about the A.D.A.M. sample, see Table 2.

Table 2: Racial Background of Participants in A.D.A.M. Database

<b>Racial Background</b>	<b>Frequency</b>	<b>Percentage</b>
White	2464	27.6
Black or African American	4364	54.1
Hispanic	1199	15.1
Other	305	3.3

Most participants had at least a 9<sup>th</sup> grade level of education (82.8%) and 23% had completed high school or had received their GED. The breakdown of employment status was as follows: 32.4% were unemployed and looking for work, 28.8% were working full time, 15.6% were working part-time. For further specifics, see Table 3.

Table 3: Employment Status of Participants in A.D.A.M. Database

<b>Employment Status</b>	<b>Frequency</b>	<b>Percentage</b>
Unemployed	1529	32.4
Working Full Time	1368	28.8
Working Part Time	743	15.6
Unemployed and Not Looking for Work	391	8.2
Disabled	337	7.1
In School	168	3.5
Seasonal Workers	78	1.6
Retired	54	1.1
Other	46	1.0
Home-makers	7	0.01
Active Military Status	4	0.0008

The majority of participants were single and never married (70%), 16.5% were married, including common law marriages. For further specifics see Table 4.

Table 4: Current Legal Marital Status of Participants in A.D.A.M. Database

<b>Current Legal Marital Status</b>	<b>Frequency</b>	<b>Percentage</b>
Single, Never Married	3314	70.0
Married, Including Common Law	777	16.5
Divorced	424	9.0
Legally Separated	144	3.0
Widowed	53	1.1

Participants were separated into dependency type. The majority of offenders did not meet criteria for dependency (51.7%), 23.0% met dependency criteria according to

the UNCOPE for drugs only, 13.8% met dependency criteria for both drugs and alcohol, and 11.5% met dependency criteria for alcohol only. For further specifics, see Table 5

Table 5: Dependency Type

<b>Dependency Type</b>	<b>Frequency</b>	<b>Percentage</b>
No Diagnosis	1561	51.7
Drugs Only	695	23.0
Both Drugs and Alcohol	418	13.8
Alcohol Only	346	11.5

Drug use within the past 30 days was also examined. The majority of offenders had used marijuana within the past 30 days (49.1%), 11.8% had used crack or rock cocaine, and 5.6% had used powder cocaine. For further specifics, see Table 6.

Table 6: Drugs Used within the Last 30 Days

<b>Drug Used within Last 30 Days</b>	<b>Frequency</b>	<b>Percentage</b>
Marijuana	1483	49.1
Crack or Rock Cocaine	357	11.8
Powder Cocaine	168	5.6
Heroin	156	5.2
Methamphetamine	156	5.2
Other Drug (Not Prescription or Over the Counter)	151	5.0

For the purposes of this study, the first hypothesis was separated to consider those drugs that are regarded as having a connection with violent behavior (crack, rock, or powder cocaine, and methamphetamine). Removing those who had used any form of

cocaine or methamphetamine resulted in a new total of 2,425 participants. However, this total was only used for hypothesis 1B.

Offense Type was also examined. The majority of arrestees were charged with nonviolent crimes (57.2%), 22.2% were charged with substance related crimes, and 20.6% were charged with violent crimes. For further specifics see Table 7.

Table 7: Offense Type

<b>Offense Type</b>	<b>Frequency</b>	<b>Percentage</b>
Nonviolent	1777	57.2
Substance Related	670	22.2
Violent	623	20.6

## **Materials**

If arrestees consented, they were given an extensive confidential interview by a trained Abt Associates Inc. professional, a firm that conducts research in several different disciplines. Interviews included questions pertaining to demographics, what they were arrested for, drug use over the past year, methods for obtaining drugs, and when they started using drugs, among other questions. Hoffmann and colleagues (2003) developed a six item screening measure that can determine dependency relatively accurately. This measure, called the UNCOPE (Hoffman et al., 2003), assesses dependency with 88% accuracy with the DSM-IV-TR and consists of the following questions:

- 1) Have you **Used** drugs or alcohol more than you meant to?
- 2) Have you **Neglected** obligations/responsibilities because of alcohol or drugs?
- 3) Have you ever wanted to **Cut** down on your alcohol/drug use?

- 4) Have your friends/family **O**bjected to your drug/alcohol use?
- 5) Do you have a **P**reoccupation with drug/alcohol use?
- 6) Have you ever used drugs or alcohol to relieve **E**motional discomfort?

If a person answers “yes” to three or more of these questions, that individual is likely to meet DSM-IV-TR criteria for dependence. These questions can be asked within a certain time frame (ex: within the last 12 months have you...), or over the course of the interviewee’s lifetime (ex: in your life have you ever...). For the purposes of this study, arrestees were asked about their drug use in the past year. Questions can also be asked pertaining to specific drug use, and overall drug use. The most common drugs that it is used for are those with the most frequent diagnoses: alcohol, marijuana, cocaine, heroin, crystal methamphetamine, and amphetamines.

Arrestees also provided a urinalysis to test for, and verify, recent drug use. For the current study, only those whose self-reported drug use and urinalysis matched were used in the sample. Recent and previous arrest records were also obtained to verify arrestee self-reports. Abt Associates, Inc. also used sophisticated sampling techniques to get a representative sample of the populations that are arrested.

To run the analyses, both SPSS and Stata were used. Both are data analysis and statistical software programs that are used to easily compute statistical equations. Although owned and manufactured by different companies, both programs are used with frequent regularity in multiple research areas.

### **Procedure**

Arrestees were approached within the first 48 hours of their arrest and asked to complete an interview about their recent and past drug use. After the interview was

completed, participants were asked to provide a urinalysis to verify and test for recent drug use. For this study, crimes were categorized into violent, nonviolent and substance related crimes. For the purposes of this study, the UNCOPE was broken down into four categories. Those who answer yes to 0-1 questions were considered to have no diagnosis of dependence. Those who answer yes to 2-3 questions were considered to have a “mild” diagnosis of dependence, and those who answer yes to four or more questions were considered to have a moderate to severe diagnosis of dependence. This follows the proposed revisions in the DSM-5 by putting severity of the disorder on a sliding scale from no diagnoses to severe diagnoses (APA, 2012). Those who answered yes to three or more questions on both the UNCOPE for drugs and the UNCOPE for alcohol were put in a composite group to account for comorbidity of both drug and alcohol use.

For the purposes of this study, the first hypothesis was separated to consider those drugs that are regarded as having a connection with violent behavior, such as crack, rock, or powder cocaine, and methamphetamine (Hoaken & Stewart, 2003; Sommers & Baskin, 2006; Tyner & Fremouw, 2008; Martin et. al., 2009). These drugs were excluded from the sample to remove a potential confounding variable in the first hypothesis. The results of this were then compared to the hypothesis where the drugs were included.

## CHAPTER FOUR: RESULTS

The hypothesis that those who are dependent on drugs (including those drugs that are associated with violence) commit crimes that are not violent, such as property crimes or substance related crimes, was tested by running a multinomial regression, covarying out for age and race. Crimes were separated into different offense types that consist of violent crimes, nonviolent crimes, and substance crimes (See Appendix A). Results indicated that offenders who were dependent on drugs were more likely to commit substance related crimes  $\chi^2(6, n = 3020) = 41.78, p < .001$ . The Wald criterion demonstrated that dependence on drugs made a significant contribution to prediction ( $p < .001$ ). It was found that individuals who are dependent on drugs are more likely to be charged with a substance related crime rather than a non-violent or violent crime (relative risk ratio = 1.59). A relative risk ratio is the probability that a member of an exposed group (in this study, the arrestees who are dependent on drugs) will experience a negative effect (being arrested for nonviolent or substance related crimes), relative to the probably that an unexposed group (those who are not dependent) will experience that same negative effect. The results indicate that those who are dependent on drugs only are more likely to have been charged with a substance related crime rather than nonviolent or violent crimes when compared to those who were dependent on alcohol only, both drugs and alcohol, and those who were not dependent on any substances.

It was also found that those who were dependent on drugs only were more likely to have been charged with a felony offense when compared to those who were dependent on alcohol only, both drugs and alcohol, and those who were not dependent on any

substances  $\chi^2(3, n = 3020) = 47.00, p < .001$ . Together, these results indicate that those who are dependent on drugs only are more likely to be charged with a substance related felony offense than those who were dependent on alcohol only, both drugs and alcohol, and those who were not dependent.

The second part of the first hypothesis regarding those who are dependent on drugs only was concerned with those drugs that are associated with violent behaviors. These drugs include the any form of cocaine and methamphetamine. These drugs were removed from the sample to eliminate a potential confounding variable. A Chi-square test for independence was run comparing drug dependence to the severity of the charge (felony vs. misdemeanor) as well as the type of crime (violent, nonviolent, or substance related). The Chi-square test indicated a significant association between drug dependence and receiving a felony charge,  $\chi^2(3, n = 2,425) = 28.04, p < .001$ . A significant association was also indicated between drug dependence and being charged with a substance related crime  $\chi^2(6, n = 2,425) = 29.72, p < .001$ . This indicates that even with drugs that are associated with violence removed, those who are dependent on drugs are more likely to be charged with a substance related felony offense when compared to those who are dependent on alcohol only, both drugs and alcohol, and those who are not dependent on any substances.

The results of the two parts of the first hypothesis regarding drug dependence were very similar. Regardless of whether drugs that are associated with violence are included in the sample, those who are dependent on drugs only were more likely to be charged with a substance related felony offense. For further specifics, see Tables 8 and 9.



To test the second hypothesis predicting that those who are dependent on alcohol commit crimes that are more violent rather than non-violent or substance related crimes, a multinomial regression was run. Age and race were once again covaried out. Results indicated that offenders who were dependent on alcohol were more likely to commit violent crimes  $\chi^2 (6, n = 3,020) = 41.78, p < .001$ . The Wald criterion demonstrated that dependence on drugs made a significant contribution to prediction ( $p < .001$ ). It was found that alcohol dependence was the only significant predictor of being charged with a violent crime, compared to those who were not dependent (relative risk ratio = .57). Alcohol dependence was also significantly negatively associated with a probability of being charged for a substance related crime when compared to a violent crime (relative risk ratio = .56). It was also found that alcohol dependence was significantly associated with being charged with a misdemeanor,  $\chi^2 (3, n = 3,020) = 47.00, p < .001$ . This indicates that those who are dependent on alcohol only are more likely to be charged with a violent misdemeanor than those who are dependent on drugs only, both alcohol and drugs, and those who are not dependent on any substances. Alcohol dependence was also associated with being arrested an average of 4 more times than those who are not dependent on alcohol.

The exclusion of those drugs that are associated with violence (any form of cocaine and methamphetamine) also had a minor impact on crime severity level and crime type. Consistent with the previous hypothesis, it was found that removing those who had used violent drugs had minimal impact on crime severity level and crime type for those who were dependent on alcohol. It was found that those who are dependent on alcohol were more likely to be charged with a violent crime ( $\chi^2 (6, n = 2,425) = 28.03, p$

< .001) and also with a misdemeanor ( $\chi^2(3, n = 2,425) = 29.72, p < .001$ ). For further specifics see Tables 8 and 9.

Table 8: Crime Severity Level by UNCOPE Dependency Type

	UNCOPE Dependency Type N (%)			
<b>Sample Including Cocaine and Methamphetamine</b>	<b>No Diagnosis</b>	<b>Alcohol Dependent Only</b>	<b>Drug Dependent Only</b>	<b>Dependent on both Drugs and Alcohol</b>
Felony	579 (37.1)	104 (30.1)	345 (49.6)	159 (38.0)
Misdemeanor	982 (62.9)	242 (69.9)	350 (50.4)	259 (62.0)
<b>Sample Excluding Cocaine and Methamphetamine</b>	<b>No Diagnosis</b>	<b>Alcohol Dependent Only</b>	<b>Drug Dependent Only</b>	<b>Dependent on both Drugs and Alcohol</b>
Felony	534 (36.6)	94 (29.0)	199 (46.8)	71 (33.0)
Misdemeanor	927 (63.4)	230 (71.0)	226 (53.2)	144 (67.0)

Table 9: Type of Crime by UNCOPE Dependency Type

	UNCOPE Dependency Type N (%)			
<b>Sample Including Cocaine and Methamphetamine</b>	<b>No Diagnosis</b>	<b>Alcohol Dependent Only</b>	<b>Drug Dependent Only</b>	<b>Dependent on both Drugs and Alcohol</b>
Violent	344 (22.0)	103 (29.8)	125 (18.0)	92 (22.0)
Nonviolent	875 (56.1)	171 (49.4)	347 (49.9)	224 (53.6)
Substance Related	342 (21.9)	72 (20.8)	223 (32.1)	102 (24.4)
<b>Sample Excluding Cocaine and Methamphetamine</b>	<b>No Diagnosis</b>	<b>Alcohol Dependent Only</b>	<b>Drug Dependent Only</b>	<b>Dependent on both Drugs and Alcohol</b>
Violent	323 (22.1)	97 (29.9)	87 (20.5)	63 (29.3)
Nonviolent	831 (56.9)	160 (49.9)	212 (49.9)	102 (47.4)
Substance Related	307 (21.0)	67 (20.7)	126 (29.6)	50 (23.3)

To answer the research question of whether early drug use causes more interaction with the criminal justice system a multiple regression was run, covarying out for age and race for reasons previously stated. The dependent variable was the number of

prior arrests and was collapsed into four categories: those who had never been arrested before, those who had been arrested 1-3 times, those who had been arrested 4-10 times, and those who had been arrested 11 or more times. The independent variables were self-reported drug use before age 16, dependence on alcohol, drugs, or both alcohol and drugs according to the UNCOPE, and race. Multiple regression analyses were conducted to assess the ability of the independent variables to predict the number of prior arrests. The overall model was significant,  $F(3, 3012) = 52.75, p < .001$ . Moreover, drug use before age 16, dependence on alcohol, drugs, or both alcohol and drugs, and race were significant predictors of greater number of times arrested.

The final research question examined the relationship between early drug use onset (before age 16) and crime severity. A logistic regression was conducted, with the dependent variable being severity of the offense (felony vs. misdemeanor). Independent variables were the number of prior arrests, dependence on alcohol only, drugs only, or both alcohol and drugs, age of first drug use, and race. Results show that the likelihood of being charged with a felony significantly increased if offenders had been arrested 1-3 times previously (odds ratio = 1.26,  $p = .04$ ), and if offenders were dependent on drugs only (odds ratio = 1.58,  $p < .001$ ). Results also show that the likelihood of being charged with a felony significantly decreased if offenders were dependent on alcohol only (odds ratio = .69,  $p = .005$ ), and if offenders were black (odds ratio = .70,  $p < .001$ ). However, age of first use of drug use had no significant effect on severity of current crime. This result is consistent with previous findings in the current study that those who are dependent only on drugs are more likely to be charged with a felony offense and that those dependent on alcohol only are more likely to be charged with a misdemeanor.

## CHAPTER FIVE: DISCUSSION

The first hypothesis that predicted that those who are dependent on drugs were more likely to be charged with crimes that are not violent was supported both when drugs that are typically associated with violence were included and removed. What is remarkable is that when drugs that are associated with violence are included in the sample, the proportion of those who are dependent on drugs that are charged with a violent crime was actually lower than when these drugs were excluded from the sample. This may indicate that those who are using drugs that are associated with violence are not actually being charged with violent crimes.

It was found that these individuals that are dependent on drugs only are more likely to be charged with substance related felony offenses. It can be concluded that many offenders arrested for substance related crimes have engaged in crime to support their dependence. It can also be concluded that those who are dependent on drugs only are arrested less because they are already incarcerated for felony offenses and cannot be arrested again while incarcerated. This finding indicates that while offenders who are dependent on drugs are less likely to be charged with a violent crime than those who are not dependent on any substances, are dependent on alcohol, or qualify for dependence on both alcohol and drugs, they are likely to spend more time incarcerated.

The hypothesis that those who were dependent on alcohol would be more likely to be charged with a violent crime was also supported. This hypothesis was still supported when drugs that are associated with violence were removed from the sample. However, while dependence on alcohol was associated with being charged with crimes

that are more violent, it was also associated with being charged with misdemeanors rather than felonies. This indicates that those who are dependent on alcohol only are more likely to be charged with violent misdemeanors and therefore spend less time incarcerated.

However, it was found that those who are dependent solely on alcohol are likely to have an average of four more arrests than those who are not dependent on alcohol. This high number of violent misdemeanor arrests may mainly consist of those who were arrested for being “drunk and disorderly.” However, if the government started treating those who are dependent on alcohol, recidivism rates may decrease and therefore greatly impact the criminal justice system. A policy to help treat those who are dependent rather than incarcerate them may be helpful in the future.

Together, these findings may have a policy implication. It can be concluded that instead of incarcerating offenders who are committing violent offenses, the criminal justice system is incarcerating people who are mostly nonviolent. Lawmakers should take these findings into consideration when writing future drug control policies.

One interesting finding of this study consisted of the group that was dependent on both drugs and alcohol. This group was consistently between those who were dependent solely on alcohol and those who were dependent on drugs only. When drugs that were associated with violence were included in the sample, those who were dependent on both drugs and alcohol had a 38% chance to be charged with a felony offense compared to those who were dependent on drugs only (49.6%), and those who were dependent on alcohol only (30.1%). Those who were dependent on both drugs and alcohol also had a 22.0% chance of being charged with a violent crime compared to those who were solely dependent on alcohol (29.8%), and those who were dependent on drugs only (18.0%).

This indicates that, when drugs that are associated with violence are included in the sample, those who are dependent on both drugs and alcohol are likely to be charged with violent felonies.

This finding was consistent when drugs that are associated with violence were removed from the sample. Those who are dependent on both drugs and alcohol had a 33% chance of being charged with a felony offense compared to those who were dependent solely on drugs (46.8% chance), and those who were dependent on alcohol only (29% chance). However, those who were dependent on both drugs and alcohol were just as likely to be charged with a violent offense as those who were dependent solely on alcohol (29.3% and 29.9% chance respectively). Both of these categories were more likely to be charged with a violent offense than those who were dependent on drugs only (20.5% chance). Again, this indicates that those who are dependent on both drugs and alcohol are likely to be charged with violent felony offenses.

Another interesting finding in this study dealt with those drugs that are commonly associated with violence. For this study, those drugs included any form of cocaine and methamphetamine. There were no significant differences when these drugs were removed from the sample. This is consistent with some previous studies stating that there little to no connection between these psychostimulants and violent crime (Haoken & Stewart, 2003, Tyner & Fremouw, 2008).

The first research question of drug use before age 16 causing more contact with the criminal justice system was also supported. It was found that drug use before age 16 contributed to an average of more than two arrests when compared to those who started using drugs after age 16. This finding is consistent with previous research stating that

those who start using drugs earlier have more contact with the criminal justice system (i.e. Wilson, et. al., 2001; Brunelle et al., 2005; Slade et al., 2008; Osho & Grant, 2011).

The final research question considered early age of onset of drug use and severity of charge. While it was found that age of onset does not affect the severity of the crime an offender is charged with, having 1-3 prior arrests and being dependent on drugs was significantly associated with being charged with a felony. An interesting finding was that being dependent on alcohol and being black were significantly associated with being charged with a misdemeanor rather than a felony. This is consistent with the previous finding of this study that those who are dependent on alcohol are more likely to be charged with misdemeanors.

By considering all of the results together, the conclusion that there needs to be more of a focus on dependence in the criminal justice system can be drawn. By focusing more on treatment for drug dependence rather than punishment, many problems in the criminal justice system may be lessened. For example, by treating dependence, recidivism rates may go down since many offenders commit their crimes as a result of finding funding for their drug or alcohol habit or as a result of the physiological effects of the drug.

This lower recidivism by treating dependence has already been shown in the drug court system (Cooper, 2003; Mitchell, Wilson, Eggers, & MacKenzie, 2012). Lower rates of recidivism could then lessen the number of backlogged cases in the court system, and save the government (federal or state) money as well. It has already been shown to save jails bed spaces and probations services out in the community (Cooper, 2003). Drug courts have also shown significant positive results in reducing drug use for both

graduates of the programs, as well as current participants, and by having significantly higher treatment completion rates than other programs (Cooper, 2003). One aspect of the drug court experience that may be of significance is the sanction of jail time at the beginning of the program (Brown, Allison, Nieto, 2011). This sanction was found to be particularly effective for those who were not “acclimated” to the criminal justice system, and had a significant positive impact on participants completing the program (Brown, Allison, Nieto, 2011).

By adding new policies that focus on treating dependence rather than incarcerating offenders and not treating them, crime rates may be reduced. However, it is unlikely that all arrestees will not serve jail time for crimes they have committed if they are dependent on alcohol or drugs, especially if the crimes are violent crimes. In this case, more resources should be made available to those in prison or jail who are committed to change. These additional resources could include more supplies for classes, such as self-help books, or more opportunities for 12 step programs. Other resources may include funding for motivational speakers to come speak to those who are incarcerated, as well as medications that may lessen the effects of withdrawal symptoms.

These results also indicate that the group that is most at risk for future violent crimes are those who become alcohol dependent at an early age (age 16 or earlier). There should be a heavy focus on this group in juvenile detention centers or treatment programs. There should also be an emphasis on prevention programs in the school and the community. Prevention programs may educate juveniles about the potential health and social risks associated with overconsumption of alcohol. Treating those who become



dependent on alcohol at an early age may decrease the risk for recidivism overall, but especially for violent recidivism.

## CHAPTER SIX: FUTURE DIRECTIONS

Some future directions for research may include looking into the connection of alcohol dependence and violent crimes. Although several studies, including this one, have found this connection, there is little research as to why those who use alcohol commit more violent crimes than those who use drugs. Studies should determine whether this connection is due to the psychopharmacological effects of ethanol, if environmental cues play a role, or if another unknown factor may link alcohol use and violent crime.

Another direction for future research would be to break down participants according to what specific drugs they used or are dependent on. Although this study was able to remove drugs that are commonly associated with violence, heroin and marijuana users were still grouped together. Future studies should focus on one specific type of drug and may provide useful information. For example, it may be found that those who are dependent on methamphetamine commit crimes that are more violent than those who are dependent on cocaine.

Although drug courts have been found to be effective (Cooper, 2003, Mitchell, Wilson, Eggers, & MacKenzie, 2012), there should be further studies to find out how drug courts can become more effective, especially in the juvenile system. Although there are several ways that are suggested to help juveniles delinquents deal with their addictions (prevention classes, cognitive-behavioral therapy, family therapy, home confinement, alternative schools, etc.) there should be more studies on the effectiveness of these approaches and suggestions as to how they can be improved (OJJDP, 2010).

One intervention that has been found to be effective in some countries is the harm reduction approach (Ritter & Cameron, 2006). Harm reduction is a philosophical approach to drug treatment where the primary goal is to reduce harm rather than drug use per se (Ritter & Cameron, 2006). Harm reduction often focuses heavily on injection drugs and provides needle syringe programs, (where users can receive clean needles), as well as supervised injecting facilities. While some aspects of harm reduction have been shown to have weak or no effectiveness, such as education, others, like the supervised injecting facilities and the needle syringe programs, have had very positive results (Ritter & Cameron, 2006). Although it is difficult to measure the exact effectiveness of these programs, there is evidence that rates of blood borne infectious diseases (such as HIV) and fatal overdoses have significantly decreased in areas where there are needle syringe programs and supervised injecting facilities (Ritter & Cameron, 2006).

Another intervention strategy that has shown some effectiveness is a personality targeted approach for youths who start binge drinking at an early age. When comparing teenagers that are disinhibited, sensation seeking, and who externalize their problems to those teenagers that are neurotic and internalize their problems, Conrad, Castellanos, and Mackie (2008) found that those who were sensation seeking persisted with personality targeted interventions for nearly 12 months after the study was completed. An advantage of this type of intervention is that it targets precursors to alcohol misuse in teenagers and therefore is more preventative rather than reactive to problem behaviors (Conrad, Castellanos, & Mackie, 2008).

Individualized assessment and treatment programs (IATP) were also found to be more effective in those who drink excessive amounts of alcohol when compared to a

packaged cognitive-behavioral therapy (PCBT) program (Litt, Kadden, & Kabela-Cormier, 2009). It was found that those who received the IATP were more likely to have more adaptive momentary coping responses, less drinking in high risk places, and proportionally more days abstinent than those who received PCBT (Litt, et. al., 2009). These intervention programs, among others, have had some success in reducing recidivism and helping to treat dependence. Other intervention programs should be studied in detail and improved upon to help lower recidivism rates and rates of dependence further.

## CHAPTER SEVEN: LIMITATIONS

There are several notable limitations to the current study. The first limitation is that the data collected was based on self-reports. It is well known that individuals lie to try to make themselves look better, or do not report everything as carefully as they should. Many of the studies used in the literature review are also self-reports. Although some measures can be taken to verify what is being reported, such as urinalysis to verify recent drug use, it is difficult to be certain that what the interviewee is reporting is completely accurate.

Another limitation is that all of the stimulants are combined when looking at urinalysis. Although it can be broken down into how many of each kind of stimulant (crack, cocaine, methamphetamine, etc.), there are not enough participants in each subgroup to qualify for significance.

Other limitations include the measure used to detect dependence. The UNCOPE is a quick screening measure that is not always 100% accurate. Studies have found that the UNCOPE typically has an 88% accuracy rate with the DSM-IV-TR (Hoffmann, et al., 2003). One way to limit these possibilities would be to go through a diagnostic interview to make sure these arrestees qualify for dependence. Although this is more time consuming and expensive than asking a brief questionnaire, it may make for a cleaner sample with less chance of false positives or negatives.

Another limitation is that this sample is comprised solely of adult males and therefore these results are not generalizable to adolescents or females. Although many policies and programs are already in place that were tested only on male correctional

populations, many of these programs are not as effective for women in correctional populations. Therefore, this study on dependence and crime severity level and crime type may not produce the same results in a female or adolescent population.

## CHAPTER EIGHT: CONCLUSION

This study found that those who start drinking alcohol before age 16 are at the highest risk not only for dependence, but also increasing number of arrests as they age. This group should be the focus of the most intensive interventions to help prevent nuisance recidivism. Dependence on drugs also results in mostly substance related crimes, while alcohol dependence was associated with violent crimes. Due to these results, there should be more of a focus on treating dependence rather than punishing dependence in drug control policy.

## REFERENCES

- Agrawal, A., & Lynskey, M. T. (2008). Are there genetic influences on addiction: evidence from family, adoption and twin studies. *Addiction*, 103(7), 1069-1081.
- Agrawal, A., Sartor, C. E., Lynskey, M. T., Grant, J. D., Pergadia, M. L., Grucza, R., Bucholz, K. K., Nelson, E. C., Madden, P. A. F., Martin N. G., & Heath, A. C. (2009). Evidence for an interaction between age at first drink and genetic influences on DSM-IV alcohol dependence symptoms. *Alcoholism: Clinical and Experimental Research*, 33(12), 2047-2056.
- American Psychiatric Association (Ed.). (2000). Substance use and substance dependence. *Diagnostic and statistical manual of mental disorders* (4th ed., pp. 212-295). Arlington: Author.
- American Psychiatric Association (Ed.). (2012a). Substance use and addictive disorders. Retrieved from <http://www.dsm5.org/proposedrevision/pages/substanceuseandaddictivedisorders.aspx>
- American Psychiatric Association. (2012b). DSM-5 development, proposed revision: alcohol use disorder. Retrieved from <http://www.dsm5.org/ProposedRevisions/Pages/proposedrevision.aspx?rid=452#>
- Bennett, T., Holloway, K., (2006). Variations in drug users' accounts of the connection between drug misuse and crime. *The Journal of Psychoactive Drugs* 38 (3). 243-254.



- Bennett, T., & Holloway, K. (2009). The causal connection between drug misuse and crime. *British Journal Of Criminology*, 49(4), 513-531.
- Best, D., Lan-Ho, M., Gossop, M., Harris, J., Sidwell, C., & Strang, J. (2001). Understanding the developmental relationship between drug use and crime: Are drug users the best people to ask?. *Addiction Research & Theory*, 9(2), 151-164.
- Brown, R. T., Allison, P. A., & Nieto, F. (2011). Impact of jail sanctions during drug court participation upon substance abuse treatment completion. *Addiction*, 106(1), 135-142.
- Brunelle, N., Cousineau, M., & Brochu, S. (2005). Juvenile drug use and delinquency: Youths' accounts of their trajectories. *Substance Use & Misuse*, 40(5), 721-734
- Cartier, J., Farabee, D., & Prendergast, M. (2006). Methamphetamine use, self-reported violent crime, and recidivism among offenders in California who abuse substances. *Journal Of Interpersonal Violence*, 21(4), 435-445.
- Chaiken, J., Chaiken, M., 1990. Drugs and predatory crime. *Crime and Justice* 13. 203-239.
- Cooper, J. A., Fox, A. M., & Rodriguez, N. (2012). Race, Structural Disadvantage, and Illicit Drug Use Among Arrestees. *Criminal Justice Policy Review*, 23(1), 18-39.
- Department of Justice, Federal Bureau of Investigation (2011). Uniform crime report. Retrieved from Federal Bureau of Investigation website:  
<http://www.fbi.gov/about-us/cjis/ucr/crime-in-the-u.s/2011/crime-in-the-u.s.-2011/persons-arrested/persons-arrested>

Department of Justice, Federal Bureau of Investigation (2009). Uniform crime report.

Retrieved from Federal Bureau of Investigation website:

<http://www.fbi.gov/about-us/cjis/ucr/ucr/>

Department of Justice, Office of Justice Programs. (2004). Drugs and crime. Retrieved from Bureau of Justice Statistics website:

<http://bjs.ojp.usdoj.gov/index.cfm?ty=tp&tid=35>

Department of Justice, Federal Bureau of Prisons (2012). Quick facts about the bureau of prisons. Retrieved from Federal Bureau of Prisons website:

<http://www.bop.gov/news/quick.jsp#2>

Dick, D., Agrawal, A., Wang, J., Hinrichs, A., Bertelsen, S., Bucholz, K., & ... Bierut, L. (2007). Alcohol dependence with comorbid drug dependence: genetic and phenotypic associations suggest a more severe form of the disorder with stronger genetic contribution to risk. *Addiction* (Abingdon, England), 102(7), 1131-1139.

Dowden, C., & Brown, S. L. (2002). The role of substance abuse factors in predicting recidivism: A meta-analysis. *Psychology, Crime & Law*, 8(3), 243.

Drug Enforcement Administration, Office of Diversion Control. (2011). Controlled substance schedules. Retrieved from U.S. Department of Justice website:

<http://www.deadiversion.usdoj.gov/schedules/index.html>

Enoch, M. (2012). The influence of gene-environment interactions on the development of alcoholism and drug dependence. *Current Psychiatry Reports*, 14(2), 150-158.

Fellner, J. (2009). Race, drugs, and law enforcement in the United States. *Stanford Law & Policy Review*, 20(2), 257-291\

- Goldstein, P., (1985). The drugs/violence nexus: A tripartite conceptual framework. *Journal of Drug Issues*, 15: 493-506
- Hallstone, M. (2006). An exploratory investigation of marijuana and other drug careers. *Journal Of Psychoactive Drugs*, 38(1), 65-75.
- Hayhurst, K., Jones, A., Millar, T., Pierce, M., Davies, L., Weston, S., & Donmall, M. (2012). Drug spend and acquisitive offending by substance misusers. *Drug and Alcohol Dependence*, doi:10.1016/j.drugalcdep.2012.10.007
- Hoaken, P. S., & Stewart, S. H. (2003). Drugs of abuse and the elicitation of human aggressive behavior. *Addictive Behaviors*, 28(9), 1533-1554.
- Hoffman, N., Hunt, D., Rhodes, W., Riley, K.J., 2003. UNCOPE: A brief substance dependence screen for use with arrestees. *Journal of Drug Issues* 3 (1) 29-44.
- Kaplan, K. (2012, June 11). Drug czar says addiction is a health problem, not a moral failing. Los Angeles Times. Retrieved from <http://www.latimes.com/health/boostershots/la-heb-drug-addiction-mental-illness-kerlikowske-20120611,0,7677562.story>
- Khokhar, J. Y., Ferguson, C. S., Zhu, A. X., & Tyndale, R. F. (2010). Pharmacogenetics of Drug Dependence: Role of Gene Variations in Susceptibility and Treatment. *Annual Review Of Pharmacology & Toxicology*, 50(1), 39-61. doi:10.1146/annurev.pharmtox.010909.105826
- Kinlock, T. W., O'Grady, K. E., & Hanlon, T. E. (2003). Prediction of the criminal activity of incarcerated drug-abusing offenders. *Journal Of Drug Issues*, 33(4), 897-920.

- Kleiman, M. (2004). Flying blind on drug control policy. *Issues in Science and Technology*, Retrieved from [http://www.issues.org/20.4/p\\_kleiman.html](http://www.issues.org/20.4/p_kleiman.html)
- Kouri, E. M., Pope, H. r., & Lukas, S. E. (1999). Changes in Aggressive Behavior During Withdrawal From Long-term Marijuana Use. *Psychopharmacology*, (143), 302-308.
- Kreek, M.J., Nielson, D., Butleman, E., & Laforge, K.S. (2005). Genetice influences on impulsivity, risk taking, stress responsivity, and vulnerability to drug abuse and addiction. *Neurobiology of Addiction*, 8(11), 1450-1457.
- Kuhns, J. B., & Clodfelter, T. A. (2009). Illicit drug-related psychopharmacological violence: The current understanding within a causal context. *Aggression & Violent Behavior*, 14(1), 69-78. doi:10.1016/j.avb.2008.11.001
- Litt, M., Kadden, R., & Kabela-Cormier, E. (2009). Individualized assessment and treatment program for alcohol dependence: results of an initial study to train coping skills. *Addiction*, 104(11), 1837-1848. doi:<http://0-dx.doi.org.wncln.wncln.org/10.1111/j.1360-0443.2009.02693.x>
- Looman, J., & Abracen, J. (2011). Substance Abuse among High-Risk Sexual Offenders: Do Measures of Lifetime History of Substance Abuse Add to the Prediction of Recidivism over Actuarial Risk Assessment Instruments?. *Journal Of Interpersonal Violence*, 26(4), 683-700.
- Lundholm, L., Håggard, U., Möller, J., Hallqvist, J., Thiblin, I. (2012).The triggering effect of alcohol and illicit drugs on violent crime in a remand prison population: A case crossover study. *Drug and Alcohol Dependence* doi:10.1016/j.drugalcdep.2012.09.019

- Maden, A., Swinton, M., & Gunn, J. (1992). A survey of pre-arrest drug use in sentenced prisoners. *British Journal Of Addiction*, 87(1), 27-33
- Martin, I., Palepu, A., Wood, E., Li, K., Montaner, J., & Kerr, T. (2009). Violence among street-involved youth: the role of methamphetamine. *European Addiction Research*, 15(1), 32-38.
- Miller, C.S., Woodson, J., Howell, R.T., Shields, A.L.. (2009). Assessing the reliability of scores produced by the Substance Abuse Subtle Screening Inventory. *Subst Use Misuse* 44(8):1090-100
- Mitchell, O., Wilson, D., Eggers, A., & MacKenzie, D. (2012). Assessing the effectiveness of drug courts on recidivism: A meta-analytic review of traditional and non-traditional drug courts. *Journal Of Criminal Justice*, 40(1), 60-71
- Nurco, D. N., Hanlon, T. E., & Kinlock, T. W. (1991). Recent research on the relationship between illicit drug use and crime. *Behavioral Sciences & The Law*, 9(3), 221-242.
- Office of Juvenile Justice and Delinquency Prevention. (2010). *Ojjdp model programs guide*. Retrieved from <http://www.ojjdp.gov/mpg/programTypesDefinitions.aspx>
- Office of National Drug Control Policy. (2011). *Policy and research*. Retrieved from <http://www.whitehouse.gov/ondcp/policy-and-research>
- Osho, G., & Grant, M. (2011). Substance use of repeat juvenile offenders: An empirical investigation. *European Journal Of Social Science*, 19(4), 492-498.
- Ritter, A., & Cameron, J. (2006). A review of the efficacy and effectiveness of harm reduction strategies for alcohol, tobacco and illicit drugs. *Drug & Alcohol Review*, 25(6), 611-624.

- Schultz, S., Harmon, B., Chang, K., Fenfang, L., Krusor, C., Beck, T., Chavez, C., & Brasher, J. Kansas Sentencing Commission. (2011). Kansas sentencing guidelines desk reference manual. Retrieved from website:  
[http://www.accesskansas.org/ksc/2011desk/2011\\_DRM\\_Text.pdf](http://www.accesskansas.org/ksc/2011desk/2011_DRM_Text.pdf)
- Sevigny, E., & Coontz, P. (2008). Patterns of substance involvement and criminal behavior - A gender-based cluster analysis of Pennsylvania arrestees. *International Journal Of Offender Therapy And Comparative Criminology*, 52(4), 435-453.
- Simpson, M., (2003). The relationship between drug use and crime: a puzzle inside an enigma. *International Journal Of Drug Policy*, 14307-319
- Slade, E., Stuart, E., Salkever, D., Karakus, M., Green, K., & Ialongo, N. (2008). Impacts of age of onset of substance use disorders on risk of adult incarceration among disadvantaged urban youth: a propensity score matching approach. *Drug And Alcohol Dependence*, 95(1-2), 1-13
- Sommers, I., & Baskin, D. (2006). Methamphetamine use and violence. *Journal Of Drug Issues*, 36(1), 77-96
- Stockwell, T., Murphy, D., & Hodgson, R.J. (1983). The Severity of Alcohol Dependence Questionnaire: Its use, reliability and validity. *British Journal of Addiction* 78(2), 145-156.
- Tarter, R. (1990). Evaluation and treatment of adolescent substance abuse : A decision tree method. *American Journal of Drug and Alcohol Abuse* 16, 1-46.
- Taylor, B., & Bennett, T. (1999). A comparison of drug use in arrestees in the united states and england. (pp. 26-29). National Institute of Justice. Retrieved from

<http://books.google.com/books>

[hl=en&lr=&id=HEQXhbNm7FYC&oi=fnd&pg=PR3&dq=Arrestee drug abuse monitoring database urinalysis vs self report drug use&ots=Ujym366AZ5&sig=Xv\\_7jEvYpExfvxE6aJROHQ-JEb0](http://books.google.com/books?hl=en&lr=&id=HEQXhbNm7FYC&oi=fnd&pg=PR3&dq=Arrestee+drug+abuse+monitoring+database+urinalysis+vs+self+report+drug+use&ots=Ujym366AZ5&sig=Xv_7jEvYpExfvxE6aJROHQ-JEb0)

- Tsuang, M.T., Bar, J.L., Harley, R.M., Lyons, M.J. (2001). The Harvard twin study of substance abuse: What we have learned. *Harvard Review of Psychiatry*, 9(6). 267-79.
- Tyner, E., & Fremouw, W. (2008). The relation of methamphetamine use and violence: A critical review. *Aggression and Violent Behavior* 13 (4). 285-297
- U.S. Department of Health and Human Services, Office of Applied Studies. (2008). National survey on drug use and health. Retrieved from Department of Health and Human Services website: <http://www.oas.samhsa.gov/criminalJustice.htm>
- U.S. Department of Health and Human Services, Office of Applied Studies. (2010). National survey on drug use and health. Retrieved from Department of Health and Human Services website: <http://www.oas.samhsa.gov/criminalJustice.htm>
- White, H. R., Gorman, D. M., (2000). Dynamics of the drug-crime relationship. *Criminal Justice I*. 151-218.
- Wilson, J. J., Rojas, N., Haapanen, R., Duxbury, E., & Steiner, H. (2001). Substance abuse and criminal recidivism: A prospective study of adolescents. *Child Psychiatry & Human Development*, 31(4), 297-312.

Appendix A  
List of Crimes

Violent Crimes

- 1) Murder
- 2) Kidnapping
- 3) Sexual Assault/Rape
- 4) Domestic Battery
- 5) Manslaughter
- 6) Robbery
- 7) Aggravated Assault
- 8) Other Assault
- 9) Other Crimes Against Persons

Property/Nonviolent Crimes

- 1) Blackmail
- 2) Arson
- 3) Flight/Escape
- 4) Burglary
- 5) Damage/Destroying Property
- 6) Fraud
- 7) Theft
- 8) Stolen Vehicle
- 9) Stolen Property
- 10) Trespassing
- 11) Public/Peace Disturbance

Substance Crimes

- 1) DUI/DWI
- 2) Drug Sale
- 3) Drug Possession
- 4) Possession of Alcohol by a Minor
- 5) Liquor
- 6) Under the Influence of a Substance