

THE RELATIONSHIP BETWEEN CRIME AND MULTIPLE DRUG AND ALCOHOL USE: THE CASE OF USA¹

Suç ve Farklı Türlerde Uyuşturucu ve Alkol Kullanımı İlişkisi: ABD Örneği

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Özet

Bu araştırma, alkol ve farklı tiplerde uyuşturucu maddelerin aynı anda kullanımının (multiple-type-drug use) insanların sapma ve suçlu davranışa yönelmeleri üzerindeki etkisini 2005 ABD Ulusal Uyuşturucu Kullanımı ve Sağlık Araştırması'ndan elde edilen veriler üzerinde yapılan Maksimum Olasılık Değerlendirme (Maximum Likelihood Estimation Logit Regression) tekniklerini kullanarak incelemektedir. Logistik regresyon tekniğinin kullanıldığı analizler sonucunda çok çeşit uyuşturucu kullanımının insanların suçlu ve sapma davranışlarını açıklayan önemli bir faktör olarak devam ettiği gözlemlenmiştir. Analizler farklı tiplerde uyuşturucu kullanımının Afrika asıllı Amerikalılarla çok ilişkili olduğunu ortaya koymuştur. Daha önemlisi, evlilik, yüksek gelir ve eğitim düzeyi gibi bazı koruyucu faktörler siyahî vatandaşların yakalanmalarının azaltılmasına herhangi bir etki yapmamaktadır. Son olarak, uyuşturucu çeşitleri arasında eroin kullanımının suçlu davranışı üzerinde çok etkili olduğu tespit edilmiştir. Makalenin son bölümünde, elde edilen bulgular ışığında uygulamaya yönelik bazı politika önerileri sunulmuştur.

Anahtar Kelimeler: Uyuşturucu Kullanımı, Alkol, Suç ve Sapma Davranışı, Eroin.

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Abstract

This study examined an impact of multiple drug use in combination and alcohol use on individuals' likelihood of getting involved in deviant behavior in the US. The data used for this study is the 2005 National Survey on Drug Use and Health (NSDUH) which is available from ICPSR under the number 4596. As results of Maximum Likelihood Estimation (MLE) Logit regression analysis indicate that the multiple drug use in combination is still stronger predictor of criminal behavior. Moreover, the multiple drug use was found highly represented by African Americans. Furthermore, the protective factors such as marriage, higher income and higher education were not really matter for the Blacks' likelihood of arrest for the criminal behavior which might also be explained by implicit discrimination toward people of color in American Criminal Justice System. Finally, among individual drug types, heroin is the most influential drug causing higher criminal involvement. In conclusion part, we provide some policy implications in the light of findings of the study.

Key Words: Drug Use, Alcohol, Criminal, Deviant Behavior, Heroin.

Introduction

Crime has long been among most serious problems of the American society and it can be seen vividly in the numerous scholarly works of the prominent academicians across the country (Blumstein, 1995:10). In addition, drug use is one of the major factors contributing to the crime problem in this country. As many scholars investigate the causal impact of illicit drug use, they assess that youths' involvement in illicit drug market is one of the top factors producing the violence and high crime rates.

Chaiken and Chaikens' (1990) work examining the correlation of the drugs and predatory crime tells us about controversial point in understanding the drug-crime causal relations. The main focus of these scholars was on whether the drug use causes the violent crime or the prior delinquency leads to the high drug abuse. In this context, Chaiken and Chaiken's (1990) eventual clarification was that the drug abuse is not a good predictor of the future predatory criminality. Predatory crimes often occur before the drug use. In contrast to that, they highlight that predatory

criminals, abusing multiple types of drug, are being involved in greater number of crime. Furthermore, scholars point out the considerable causative influence of persistent use of cocaine and heroin on committing predatory crimes rather than other types of drugs. At that point, Chaiken and Chaiken (1990) argue that reducing the rate of using cocaine and heroin among drug users decreases their likelihood of deviant behavior.

Jason A. Ford (2005) points out the direct and indirect relationship between drug use and delinquency. Ford (2005) argues that as the prior substance use predicts the likelihood of future substance use, the prior delinquency is also the main predictor of the future delinquency. Ford's (2005) second argument is that the prior substance use predicts the future delinquency and prior delinquency also predicts the likelihood of future substance use (Ford, 2005:109). The scholar characterizes this correlation between drug use and delinquency as a direct causal relationship. Furthermore, Ford (2005) highlights the presence of intervening variable between the substance use and crime- social bond- which is classified as an indirect association of drug use and crime. Ford (2005) emphasizes that both substance use and delinquency are prevalent in neighborhoods seriously damaged and with weakened social bonds which is likely to make them incapable of demonstrating adequate social control. Each of these factors, drug use and delinquency, generates the each other by deteriorating the social bond. In other words, weakened social bond by substance use and delinquency produces either higher crime involvement or drug use (Ford, 2005).

Michael Tonry's (1990) emphasis about limitations of drug-crime studies indicates that "there is no inexorable connection between drug use and criminality. Many users of illicit drugs commit not other crimes. Many criminals do not use illicit drugs. Sometimes, drug use comes first, sometimes criminality comes first; both are powerfully associated with a deviant lifestyle in which each is common" (Tonry, 1990:4). Similarly, Harrison (1992) also argues that "the causal link between nondrug crime and drug usage has not yet been established, although the two appear to be correlated" (Harrison 1992, in Corman and Mocan 2000:585).

In another study, Miller, Levy, Cohen, and Cox (2006) provide us with a significant statistical number about the consequences of alcohol and other drug use in crime. They (2006) stress that "an estimated 5.4

million violent crimes and 8 million property crimes involved alcohol and other drug (AOD) use in 1999. Those AOD-involved crimes cost society over \$6.5 billion in medical and mental health care and almost \$65 billion in other tangible expenses” (Miller et al., 2006:1). Therefore, to seek the linkage between the alcohol/drug use and the increased rate in crime was a primary concern of many scholars. The focus on the alcohol use is a very crucial, since the use of drug is likely to be higher among those who use the excessive alcohol before. As a matter of fact, interviewed prisoners in different studies gave similar responses about their prior alcohol and drug use. It could be concluded that the most of the prisoners were drug users prior to their incarceration, and drug users are more likely to be engaged in deviant behavior rather than others who are non-users of drug. From this point of view, scholars say that as the use of drug increases, the crime rate also increases proportionately (Chaiken and Chaiken, 1990.).

Miller (2006) points out the relationship between certain kinds of crime and deviant behavior of the inmates who had used drugs before their conviction and engaged in crime under the drug and alcohol influence. Miller (2006) argues that drug users are more likely to get involved in several types of crime such as homicide, rape, robbery, larceny, assault, theft, and motor vehicle theft. The main reason of committing crime of interviewed inmates was to find the money for their drugs. Besides, it is equally important to stress that Miller (2006) estimates the type of drugs, cocaine, crack, heroin, marijuana, stimulants, and depressants, which were used more by convicted offenders, and caused their higher propensity to commit the crime. In many responses of prisoners, the use of multiple types of drugs was present, and it also might send scholars to think whether the combination of different drug types would cause the drug users’ being prone to commit the crime and higher probability of increase in crime rate (Miller et al., 2006:3-4).

The current research presents a study on correlations of alcohol use, of multiple drug use as well as a specific type of drugs with crime. Although this is a replication of early research, the study focuses on whether increasing number of drugs and different type of drugs used in combinations cause higher crime rates. As it has been proved by many previously conducted studies that illicit drug use is the strongest predictor of future

deviant behavior, the following literature part will provide quite broad information which is enough to get convinced on possible drug-crime relations.

1. Theoretical Explanations for the Multiple Drug Use and Crime

The study of Bennett and Holloway (2005) employed unique research on the multiple drug use and its possible impact on crime. Bennett and Holloway (2005) stress that “the associations between specific drug use (heroin) and crime will be the same regardless of the additional drugs consumed” (Bennett and Holloway, 2005:63). The primary focus of the indicated study is whether the increasing number of drug use and the combination of different types of drug will originate the increasing rate of crime involvement. Bennett and Holloway (2005) framed their research on theories of multiple drug use and crime, consisting of economic, psychopharmacological, and lifestyle explanations.

First, Bennet and Holloway (2005) say that the “economic theories of the association between drug use and crime are based on the idea that greater involvement in drug use leads to greater expenditure on drugs and greater involvement in acquisitive crime to pay for the these drugs” (Bennett and Holloway, 2005:67). From the economical standpoint, the damages given to individual victims and community services by alcohol and drug involved crimes are considerably high. Miller (2006) estimates this damage for the year 1999 as more than \$205 billion dollars. He included several measures in to his research, particularly, from the victim and social service perspective, such as medical care, property damage and loss, future earning, public services, and quality of life (Miller et al., 2006:6).

Second, the psychopharmacological explanation argues that the chemical features of drugs, particularly heroin, crack, and cocaine, have a direct and indirect influence on drug users’ behavior which causes their possible involvement in deviant act. The unpredictable behavior of intoxicated individuals who used the alcohol or other substances is quite understandable that being out of the control under the influence of drug will be more likely to lead people engage in inadequate actions.

Third, Leri and Stewart (2003) stress that the lifestyle explanation constitutes the drug and crime as a part of the lifestyle of drug users and dealers of black market (Leri and Stewart, 2003, in Bennett and Holloway, 2005:68). Moreover, Walter (1998) highlights that “lifestyles evolve out of predisposing, initiating, and maintenance factors. The maintaining factors help reinforce and escalate forms of behavior. In the case of drugs and crime, common maintaining factors encourage the convergence and reinforcement of both drug use and criminal lifestyles” (Walter, 1998, in Bennett and Holloway, 2005:68). On the other hand, there are controversial thoughts among scholars that the lifestyle explanation does not have a consistent causal effect on drug use and violence (Bennett and Holloway, 2005:68). The findings of Bennett and Holloway (2005) show that multiple drug users have higher crime involvement rather than others who do not use multiple drugs. The second perspective which is the effect of increasing number of used drug types on crime was also found as a statistically significant. This generally means that drug user’s involvement in crime will increase as they increase the use of different types of drug.

Finally, the combination of different drug types was also positively correlated with increased crime involvement which shows that the combination of different drug types, most specifically, heroin, crack, and cocaine, used by drug users increases their higher involvement in crime and violence (Bennett and Holloway, 2005:70-79). The findings of Bennett and Holloway’s (2005) study are perfectly explained by theories of multiple drug use and crime to which the best identification was given by Goldstein (1985:155) who stresses that: Drugs and violence were shown to be related in three possible ways: Psychopharmacologically, economic compulsively, and systematically. These different forms of drug related violence were shown to be related to different types of substance use, different motivations of violent perpetrators, different types of victims, and differential influence by social context.

Although this study does not include any theoretical testing of the correlation of multiple drug use and crime, it provides some theoretical explanations of crime caused by the illicit drug use. Beckett et al. (2006) conducted a study on racial disparity in Seattle’s drug delivery arrests. They found that the black people are overrepresented compared to other races. However, the primary concern is that why and how, especially, blacks and Hispanics are dealing with drug delivery and have a higher

rate of drug arrests. Many academicians interpreted this attitude from socioeconomic standpoint that blacks and Hispanics are more likely to experience the low income and limited job opportunity because of their lack of college education and some other reasons like that. From this point of view, impoverished racial and ethnic minorities show higher propensity to get involved in illegal drug use and deals in order to provide the financial resource and support (Beckett et al., 2006). As Corman and Mocan (2000) explain the theoretical framework of crime from economical standpoint, “optimizing individuals engage in criminal activities depending upon the expected payoffs of the criminal activity, the return to legal labor-market activity, tastes, and the costs of criminal activity, such as those associated with apprehension, conviction, and punishment” (Corman and Mocan, 2000:584). Hope and Corman (2000) include income inequality in their statistical model, and hypothesized that the big gap in income inequality is positively correlated with increase in the rate of involvement in criminal act (Corman and Mocan, 2000).

2. Variations in Drug Use and Violence

In terms of cross-national differences in drug use and violence, Adlaf et al., (2006) underwent a noteworthy investigation comparing three big metropolitan cities-Philadelphia, Toronto, and Amsterdam, to see whether the social, political, and drug policy shape different levels of adolescents’ drug use and their involvement in violence (Adlaf et al., 2006). Although, Adlaf et al. (2006) wanted to see the noticeable differences in drug use and violence among cities, they were also curious about whether these differences do remain after controlling compositional variation such as age and sex. In general, scholars (2006) found quite notable differences except the violent crime which involved the drug and alcohol use; however Adlaf et al. (2006) argue that they lost the sizeable variation in drug use between cities after when they controlled for the age and sex, and realized similar outcomes in drug use in all city samples.

The big dissimilarity was in adolescents’ alcohol use in Philadelphia and Toronto which was much higher than in Amsterdam. Mainly, the current analysis shows similar measurement outcomes for United States and Canada, and little differences for Amsterdam. In this case, Adlaf et al. (2006) argue that their study provides little evidence that social, politi-

cal, and drug control policies would have an effect on drug use and violence variation. However, there is still a possibility that drug control policy could frame the illicit drug use. Nevertheless, United States and Canada have a strict drug control and prohibition of illicit drug use and they demonstrate the higher rate of substance use compared to the Netherlands where the more liberal climate of drug control policy exists (Adlaf et al., 2006).

Many scholars point out the change in crime rates depending on the illicit drug used by definite demographic variables such as age, race, and gender. The age factor is an important aspect describing the changeable crime involvement by people of different ages, depending on which the crime rate will vary as well. Accordingly, youth have higher propensity to get involved in illicit drug use and engaged in deviant behavior which is different and much less than other group of ages (Blumstein, 1995). As Blumstein's (1995:14) research shows, burglary and robbery, which is strongly related with illicit drug use, reached its peak at early age of seventeen; however, the robbery remained still higher at age of twenty four which means that the robbery has a big potential to be committed somewhat at later age. Sharon E. Moore (1995) exhibits the statistical indication of National Institute on Drug Abuse for 1988 year that 18.7 percent of all Black youths who involved in criminal activity between the ages of 12 and 17 have a history of drug experimentation (Moore, 1995).

Race is also another important variable which is measured in many statistical analyses. Although big differences are seen among races, Blumstein (1995) emphasizes that "race has no theoretical meaning in itself; it combines effects associated with differences between the races in family structure, economic opportunity, community culture, discrimination experiences, and many other individual and group factors that distinguish races, especially blacks from whites in America" (Blumstein, 1995:21).

Scholars Sampson and Raudenbush (2004) stress the importance of the social disorganization which has a large scale of effect on racial, ethnic, and class compositions, and shapes a social frame in a neighborhood as well. They argue that the community demonstrating greater social disorder is likely to have higher crime involvement (Sampson and Raudenbush, 2004, in Becket et al., 2006). For instance, the higher degree of disorder perception in African-American community increased the black

youths' involvement in crime and decreased social control in neighborhood. Since, in this society, to get illegal resources by breaking the law became a common sense to all residents (Quillian and Pager, 2001, in Beckett et al., 2006).

Moore (1995) applied Emile Durkheim's theory of suicide, Karl Marx's theory of capitalism, and Molefi Asante's theory of Afrocentricity in order to explain the black males' higher involvement in drug use and drug trafficking.

On the base of Karl Marx's theory of capitalism, Moore (1995) explains that Black community, impoverished by unfair socioeconomic politics of America, perceived the drug trafficking and its illegal financial profit "as a means of economic survival". Decisive promise of black market attracts most the young black people's interest, especially, those who is living in deprived lifestyle and having a strong sense of competition with their fellow groups of other communities in order to obtain a magnificent life which they do not have (Moore, 1995).

According to Molefi Asante's theory of Afrocentricity, Moore (1995) explains that "an individual participates in self-destructive and defeating behavior and thought processes in part as a result of a lack of knowledge of his people's history and achievements" (Moore, 1995:113).

Racial difference in illicit drug use is a prominent issue in drug-crime relations. Brownsberger (2000) explores racial and ethnic disparity in incarceration for drug use and dealings in terms of five different perspectives: underlying offending, neighborhood enforcement targeting, arrests, prosecutorial and judicial decisions, and sentencing policy decisions. However, Brownsberger (2000) could not reach to the reliable information because of lack of data on some aspects. On the other hand, Brownsberger (2001) argues that neighborhood related factors are more predictable of the racial and ethnic disproportionalities. For example, minorities living in disadvantaged places are more likely to be exposed to stereotypes that are connected with drug dealings, which also considerably affect sentencing and judicial decisions (Brownsberger, 2000:359).

Gender differences in drug use were also an issue for empirical studies that seek their effect on involvement in criminal activity. McClellan, Farabee, and Crouch (1997) emphasize that substance use among females is significant. McClellan et al. (1997) argue that females' victimization at

earlier age such as rape or sexual assault increase the likelihood of their future illicit drug use. At that point, Browne and Finkelhor (1986) explain the “long term effects of sexual abuse on women that adult women victimized as children are more likely to manifest depression, self-destructive behavior, anxiety, feelings of isolation and stigma, poor self-esteem, a tendency toward revictimization, and substance abuse” (Browne and Finkelhor, 1986., in McClellan et al., 1997:470). On the other hand, McClellan et al. (1997) found female inmates are more likely than male inmates to get involved in illicit drug use before committing crime (McClellan et al., 1997:468). As many studies found out, the substance use is significantly correlated with property crimes, with female drug users are also tend to be involved in committing property crimes (McClellan et al., 1997:469).

The study of Corman and Mocan (2000) offers the policy implication for drug related crimes from a deterrence stand point. Corman and Mocan (2000) found a significant relationship between the deterrence activities of police enforcement and robbery and burglary. More importantly, the drug use was also found to be highly correlated with these types of crimes while violent crimes such as murder and felonious assault were not associated with drug use. At that point, Corman and Mocan (2005) argue that as the number of police officers in police agencies increases the rate of robbery and decreases burglary. The increase in number of police also contributes to the reduction in the level of illicit drug use; however, it does not necessarily mean that it is the only way to combat illicit substance use. Since, the conception of drug use features socioeconomic, psychopharmacological, systemic, and even cultural meanings which need to be handled through proactive substance abuse programs and nation-wide treatment projects on illicit drug use (Corman and Mocan, 2005).

This research seeks to test the effect of multiple drug use and alcohol on future crime involvement. The current study relies on previously conducted research and demonstrates the replication of study conducted in Great Britain based on data collected as part of the New English and Welsh Arrestee Drug Abuse Monitoring (NEW-ADAM) program. As indicated in literature Bennett and Holloway (2005) investigated the relationship between multiple drug misuse and crime to which they have approached from three perspective such as the prevalence of multiple

drug and crime, the number of drug types used and crime, and combinations drug types and crime. Different from this previous work, the current study includes alcohol use, and tests the interactional effect of multiple drug use with race on crime involvement. In addition, it features more control variables such as income, education, and gender. The study consists of two statistical models using some common variables; however, they look at the drug and crime correlations from different perspectives.

In the first model, the first hypothesis is that the race is related to the types of drugs used. Second hypothesis is that people using higher average number of illicit drug are more likely to get engaged in criminal behavior. Third one is that people having higher frequency of alcohol use are more likely to get involved in crime.

3. Methods and Data

The data used for this study is the 2005 National Survey on Drug Use and Health (NSDUH) which is available from ICPSR (Interuniversity Consortium for Political and Social Research) under the number 4596. The survey features broad information about citizens' use of illicit drug, alcohol, and tobacco for 12 and older ages in the United States which was periodically being conducted from 1979 to 2005.

A dependent variable is the total number of arrested and booked for any crime types in the past 12 months. It was converted to dichotomous variable and coded as 0 if respondents were not arrested and booked and as 1 if they were arrested and booked in the past 12 months.

Independent variables are total number of drug used in the past 12 month, the average total number of any illicit drug used in the past 12 months, total number of days of alcohol use in the past 12 months, and interactional variables of total number of different types of drug used in the past 12 months for races, Blacks, Hispanics, Asians, Natives, and other races which features mixed races. Caucasian is the reference group. The statistical model includes controlling variables such as income, education, marital status, race, gender, and age. The independent variables, the total number of different types of drug and the average total number of any illicit drug, include 12 different drug types such as cocaine, heroin, crack, marijuana, inhalants, sedatives, stimulants, hallucinogens, oxycon-

tin, painrelievers, tranquilizers, and methamphetamines. If these types of drugs and alcohol were used in the past 12 months are coded as 1, if they were not used as 0, and other unclear responses are coded as missing values. Independent variables, the total number of different types of drug, is generated by summing up of those 12 types of drug, and the average total number of any illicit drug use is generated also by summing up of those 12 types of drug and dividing it by 12 which is the total number of drug types. Interactional independent variables were generated by multiplying the total number of different types of drug to each race-Black, Hispanic, Asian, Native, and other races. Gender variable was recoded as 0 if it is female; male is left outside as a reference group. Marital status was coded as 1 if respondents are married present time, other information were coded as 0, and legitimate skip of respondents were coded as a missing value.

The unit of analysis of research is individual level which has 55898 sample cases. The current statistical analysis uses logit regression since the dependent variable is dichotomous, coded as 1 and 0.

4. Results

Outliers and influential cases were examined by looking at the residuals (Figure-1) and Cook's dbeta values (Figure-2). Observations that are considered as outliers and influential cases were excluded from the model. Excluding those cases improved both the fit of the model (pseudo R-squared= 0.1347) as well as the overall significance (chi-squared= 0.0000). Frequencies and percentages of multiple drug used in the past 12 months, of race, of education, of income, and of marriage is reflected on the tables from number1 to 5.

The independent variable, alcohol use is not found statistically significant, however, the logit regression table indicates that it is positively correlated with arrest, since its P value is at the level of ($P > |z| = 0.097$).

All controlling variables, gender, marital status, income, age, and education are found statistically significant at the .05 level and negatively correlated with arrest. Specifically, women, married people, those with higher income levels, older people, and people having higher education are less likely to be arrested.

Table 1: Logit Coefficients for Multiple Drug Use and Alcohol

Independent Variables	Coef.	Std. Err.	P> z
Total number of days of alcohol use	.000	(.0004)	.097
Average total number of any illicit drug use	.000	(.0004)	.200
Total number of different types of drug use	.123***	(.0273)	.000
Black's total number of different types of drug use	.274*	(.1189)	.021
Hispanic's total number of different types of drug use	-.010	(.0845)	.900
Asian's total number of different types of drug use	.843	(.6573)	.199
Native's total number of different types of drug use	-.081	(.1592)	.608
Others' total number of different types of drug use	-.267	(.1410)	.058
Black	.122	(.2340)	.600
Hispanic	.422	(.2188)	.053
Asian	-1.661	(1.030)	.107
Native	.759	(.4091)	.063
Other race	.871*	(.3819)	.023
Female	-.322**	(.0932)	.001
Married	-.516**	(.1546)	.001
Income	-.120**	(.0422)	.004
Age	-.259***	(.0165)	.000
Education	-.105**	(.0362)	.004

The predicted probabilities for African Americans indicate that the probability of getting arrested for black males with minimum use of different types of drug is 39 percent holding other variables at their mean. In addition to that, the probability of getting arrested and booked for black males with average use of different types of drug is 44 percent holding other variables at their mean. Furthermore, the probability of getting arrested and booked for black males with maximum use of different types of drug is 95 percent holding other variables at their mean.

The current research explores the probability of getting arrested and booked for married black males using multiple types of drug at different level of income and education. The probability of getting arrested and booked for married black males with minimum use of different types of drug, maximum income and education level is 19 percent holding other variables at their mean. Moreover, the probability of getting arrested and booked for married black males with average use of different types of drug, maximum income and education level is 23 percent holding other variables at their mean. Finally, the probability of getting arrested and booked for married black males with maximum use of different types of drug, maximum income and education level is 89 percent holding other variables at their mean.

Table 2: Predicted Probability of Getting Arrested and Booked of the Black Race for the Multiple Drug Use

Profiles	PR for arrest and book
- Minimum use of different types of drug	
- Black male	0.3955
- Interaction= min	
- Average use of different types of drug	
- Black male	0.4486
- Interaction= mean	
- Maximum use of different types of drug	
- Black male	0.9581
- Interaction= max	
- Minimum use of different types of drug	
- Married black male	
- Income= max	0.1946
- Education=max	
- Interaction= min	

- Average use of different types of drug	
- Married black male	
- Income= max	0.2311
- Education=max	
- Interaction= mean	
- Maximum use of different types of drug	
- Married black male	
- Income= max	0.8942
- Education=max	
- Interaction= max	

In the second model, drug types are examined in two groups in general which we have classified as use of multiple recreational and other individual drugs. The reason of separating use of drugs into illicit recreational and other individual drugs like cocaine, heroin, crack, and marijuana is to see their influential differences on crime, since the latter group is considered as the strongest predictor of a future criminal behavior. Moreover, by doing this, we will also be able to examine how much recreational drugs are an effective factor driving drug users into a deviant act.

Due to a limited knowledge on testing a cluster analysis in order to conduct a replication of Trevor Bennett and Katy Holloway's (2005) study aimed to find out a differing impact of multiple types of drugs used in combinations on deviant behavior, the current analysis limits its methodological ability with predicted probability of arrest and book for the black race used multiple drugs, particularly, heroin, cocaine, crack, and marijuana.

The second statistical model includes following hypotheses. The first hypothesis of this study is that users of multiple recreational drugs are more likely to be arrested and booked for deviant behavior than others who use less number of recreational drugs. Second hypothesis is that people using one type of drug are more likely to get involved in criminal act than others who use another type of drug. Third hypothesis is that blacks using many types of drugs are more likely to get involved in crime rather than other blacks who use fewer types of drugs.

The MLE Logit regression Table 3 indicates that the independent variable, the total number of recreational drugs used in the past 12 month is statistically significant ($P > |z| = 0.000$) which indicates that people using multiple recreational drugs are more likely to get arrested and

booked for any deviant behavior than other people who use less type of recreational drugs. Moreover, among individual drug types used in the past 12 month, marijuana is found highly significant ($P > |z| = 0.000$), while use of heroin ($P > |z| = 0.002$), cocaine ($P > |z| = 0.024$), and crack ($P > |z| = 0.046$) are found statistically significant at the level .05. As results indicate and from which we can conclude that people using the aforementioned individual drugs are more likely to be arrested and booked for a criminal behavior.

Among race variables, Black, Hispanic, and Native are found highly statistically significant ($P > |z| = 0.000$) when Asian and other races have no any significant relationship with arrest and book for deviant behaviors as a result of using multiple recreational and other individual illicit drugs. In other words, blacks, Hispanics, and natives using multiple illicit drugs are more likely to get arrested and booked for any deviant behavior rather than their white counterparts using multiple drugs.

All controlling variables, gender, marital status, income, age, and education are found statistically significant at the .000 level and negatively correlated with arrest and book which can be articulated that females, married people, people having higher income level, older people, and people having higher education are less likely to be arrested and booked for criminal behavior.

Table 3: Logit Coefficients for Multiple Drug Use

Independent Variables	Coef.	Std. Err.	P> z
Total number of days of recreational drugs use	.114***	(.0299)	.000
Total number of days of heroin use	.883**	(.2790)	.002
Total number of days of cocaine use	.233*	(.1030)	.024
Total number of days of crack use	.372*	(.1866)	.046
Total number of days of marijuana use	.343***	(.0639)	.000
Black	.624***	(.0802)	.000
Hispanic	.481***	(.0824)	.000
Asian	-.328	(.2721)	.228
Native	.634***	(.1499)	.000
Other race	.090	(.1603)	.574
Female	-.242***	(.0615)	.000
Married	-.542***	(.0868)	.000
Income	-.154***	(.0292)	.000
Age	-.248***	(.0103)	.000
Education	-.118***	(.0244)	.000

The predicted probabilities for black race tell us that the probability of getting arrested and booked for unmarried black males with heroin use is 58 percent, with crack use is 47 percent, with marijuana use is 46 percent, and with cocaine use is 43 percent holding other variables at their mean. These results can be articulated in such a way that unmarried black males using heroin are more likely to be arrested and booked for criminal act than other unmarried black males who use the crack, marijuana, and particularly cocaine. In addition to that, the probability of getting arrested and booked for unmarried black males with use of two different types of drug in combination; with heroin and cocaine is 65 percent, with heroin and crack is 68 percent, with heroin and marijuana is 67 percent, with cocaine and crack is 53 percent, with cocaine and marijuana is 52 percent, and with crack and marijuana is 55 percent holding other variables at their mean. The results of predicted probability for unmarried black males indicate that using cocaine, crack, and marijuana in combination

with heroin are more likely to be arrested and booked for criminal behavior rather than using cocaine, crack, and marijuana in dual combinations between each other. Statistical analysis shows heroin to be a strong predictor of future crime, since for unmarried black males, use of only heroin (58%) increases the predicted probability of getting arrested and booked for any deviant act rather than using cocaine and crack (53%), cocaine and marijuana (52%), and crack and marijuana (55%) in combinations. Furthermore, the probability of getting arrested and booked for unmarried black males with use of three different types of drug in combination- heroin, cocaine, and crack- is 73 percent and with use of four different types of drug in combination- heroin, cocaine, crack, and marijuana is 79 percent holding other variables at their mean. Stemming from these results, it can be concluded that using increasing types of drugs in combinations increase the likelihood of getting arrested and booked for any criminal behavior among unmarried black males. In essence, all the findings of the current statistical analysis support the results of previously conducted study by Trevor Bennett and Katy Holloway (2005) that the multiple drug use and use of different types of drugs in combination increase the likelihood of involvement in crime.

Table 4: Predicted Probability of Getting Arrested and Booked of the Black Race for the Multiple Drug Use

Profiles	PR for arrest and book
- Use of heroin	
- Unmarried Black male	0.5868
-Rest= mean	
- Use of cocaine	
- Unmarried Black male	0.4375
-Rest= mean	
- Use of crack	
- Unmarried Black male	0.4720
-Rest= mean	
- Use of marijuana	
- Unmarried black male	0.4648
-Rest= mean	
- Use of heroin and cocaine	
- Unmarried black male	0.6531
-Rest= mean	
- Use of heroin and crack	
- Unmarried black male	0.6840
-Rest= mean	

-Use of heroin and marijuana	
-Unmarried black male	0.6776
-Rest= mean	
-Use of cocaine and crack	
-Unmarried black male	0.5302
-Rest= mean	
-Use of cocaine and marijuana	
-Unmarried black male	0.5229
-Rest= mean	
-Use of crack and marijuana	
-Unmarried black male	0.5575
-Rest= mean	
-Use of heroin, cocaine, and crack	
-Unmarried black male	0.7320
-Rest= mean	
-Use of heroin, cocaine, crack, and marijuana	
-Unmarried black male	0.7938
-Rest= mean	

For the future research, the correlation of specific type of drugs with the particular sort of crime can be tested in order to obtain more information which is needed for developing future crime prevention policies regarding what kind of drug types and combinations of drug types have more effect on the individuals' behavior which demonstrates the inclination toward the certain types of crime. The treatment services are the most plausible approach to treat the multiple drug users and reduce the future illicit drug use. However, these treatment programs may need different kinds of methods for multiple drug users, since the use of the different types of drug varies depending on multiple drug users, and meanwhile, the likelihood of their future deviant behavior will also change due to the different types of drug used by drug users.

Discussion and Conclusion

This research seeks to test the effect of multiple drug use and alcohol on future crime involvement. The current study relies on previously conducted research and demonstrates the replication of study conducted in Great Britain based on data collected as part of the New English and Welsh Arrestee Drug Abuse Monitoring (NEW-ADAM) program. Dif-

ferent from this previous work, the current study includes alcohol use, and tests the interactional effect of multiple drug use with race on crime involvement. In addition, it features more control variables such as income, education, and gender. The study consists of two statistical models using some common variables; however, they look at the drug and crime correlations from different perspectives

In the first model, interactional variables of different types of drug with different races predict the statistical significance only for the Black race at the .05 level ($P > |z| = 0.021$) which means that black people using many different types of drug are more likely to be arrested and booked for any kind of crime. However, there is a big question mark on why African Americans are disproportionately found in federal prisons. As sources of Bureau of the Census from 1992 indicate that African Americans representing 12.1% of the total United States populations (U.S. Bureau of the Census, 1992:17., in Free, 1997:269) amounted to 33.8% of all federal inmates in 1993 (Maguire and Pastore, 1994:628., in Free, 1997:269). Thus, an overrepresentation of African Americans among federal inmate population leads many of scholars for researches investigating an ultimate truth laying in bottom line of this disparity.

A literature of disproportionate conviction of a black community often addresses the U.S. sentencing guidelines and federal mandatory minimum statutes enacted by the Sentencing Reform Act of 1984 in response to increasing serious offenses involving the distribution and importation of illicit drugs (U.S. Sentencing Commission, 1991b., in Free, 1997:269).

Vincent and Hofer (1994) argue that “between 1984 and 1990, 91% of the federal defendants sentenced to mandatory minimum sentences were convicted of drug-related crimes. Moreover, the Bureau of Prisons estimates that 70% of the growth in the federal prison population can be attributed to longer sentences given to drug offenders” (Vincent & Hofer, 1994:3-9). Based on data gathered by the U.S. Sentencing Commission for the fiscal year 1990, African Americans were revealed as more likely than Whites to be convicted under mandatory minimum provisions, since Black defendants composing 28.2% of all federal inmate population amounted to 38.5% of all federal defendants sentenced under mandatory minimum provisions (U.S. Sentencing Commission, 1991b., in Free, 1997). However, much of the sentencing disparity of the African Americans has long been justified by drug trafficking and type of drugs (crack

cocaine, powder cocaine) excessively used by either Black or Whites. Increasing convictions of the African Americans shows the harsher sanctions attached to crack cocaine offenses. African Americans are disproportionately likely to be charged with possession of crack cocaine, while Whites are substantially more likely to be charged with possession of powder cocaine (Vincent and Hofer, 1994).

Common sense is developed among researchers on mandatory minimum provisions that it has an adverse effect leading to a greater sentencing disparity of African Americans for drug offenses. What was argued on this is that “prior to the implementation of mandatory minimum provisions for drug offenses, Whites were more likely than Blacks to be convicted of drug trafficking, whereas the reverse was true after these provisions went into effect” (Free, 1997:276).

How sentencing guidelines let to a sentencing disparity of the African Americans were summarized in several issues. The first argument is about that sentencing guidelines give greater power to prosecutors who will have greater influences on sentencing outcomes and controlling the flow of information about offenses. Another point is that sentencing guidelines are unlikely to reduce the sentencing disparity because it is deeply concerned with criminal history which often singles out African Americans who are more likely than Whites to have prior criminal records (Free, 1997:283).

As it has been realized in the literature of the sentencing disparity, American criminal justice system failed to pursue equal justice without exhibiting prejudices toward people of color. The current study also indicates similar results matching with previously conducted researches that the use of increasing type of drugs and multiple drugs in combinations lead users to future criminal behavior. Furthermore, the study predicts a strong relation of overrepresentation of African Americans in inmate populations of the U.S. with convictions for drug offenses. Even though there is a plenty of evidences to believe for greater use of illicit drug by Blacks than Whites, there is also a quite enough space for sentencing disparity in the literature that American Criminal Justice System has long been experiencing hidden discrimination toward African Americans especially to those who involved in drug offenses.

In conclusion, we can be able to sum up the effect of multiple drug use that it is one of the strongest predictors of future crime, and it has either direct or indirect correlation with deviant behavior. As prominent scholar Paul J. Goldstein (1985) explains the drug-crime association from psychopharmacological consequences, economic and systemic crime perspectives, the multiple drug use provides with quite plausible reason and evidence enough for getting convinced that the illicit drug use causes crime.

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