

Analysis of Homicide Victim Toxicology Reports

INTRODUCTION

Much speculation exists over the connection between homicide and the physiological effects of drug use. While drug intoxication clearly has effects on sensory perception and decision-making, we do not know the extent to which physiological effects are a factor in homicide victimization. In order to further understand the relationship between homicide and the effects of drug use, we examined the toxicology reports of the victims of homicide from 2000-2001 (n=81).

These reports were consulted to identify the proportion of homicide victims with any of four drugs in their system at the time of death. It is important to bear in mind that these data provide information only about homicide victims. However, the similarity of victims to suspects in age, sex, race, criminal history and school performance as well as the nature of most homicide events would suggest that, as a group, victims and suspects would be more similar than dissimilar on drug use behavior. The drugs considered in this report include alcohol, marijuana (cannabinoids), cocaine, and heroin (opiates). Overall, our research provided little evidence of an association between victimization and drug intoxication.

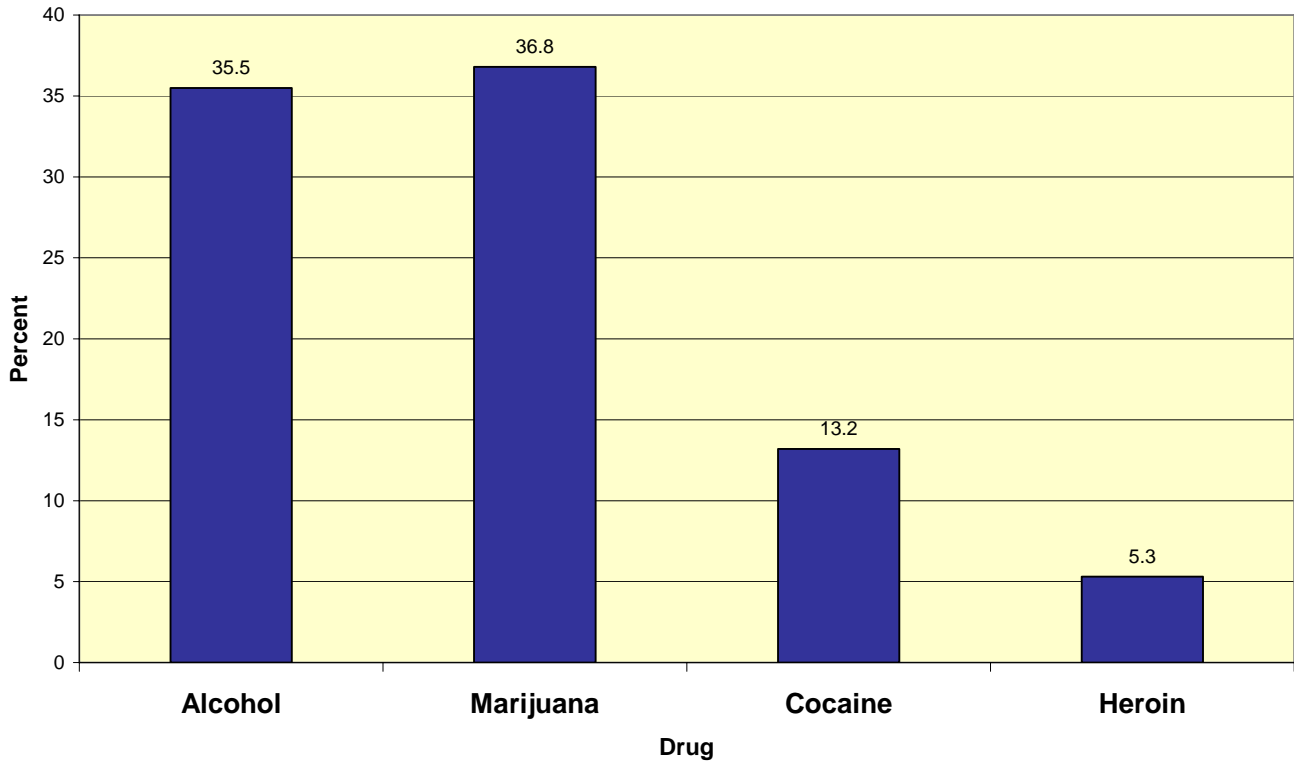
FINDINGS

In conducting our analyses, we ran general frequencies on the toxicology data as well as crosstabulations with chi-square analyses. Any relationships found statistically insignificant by the chi-square tests are not included in the findings of this paper.

General Results

Examination of toxicology reports revealed that 69.7 % of victims had some drug (including alcohol) in their system at the time of death. For illegal drugs the figure was 47.4%. The data for individual substances are presented below.

Percent of Victims Testing Positive



Reasonable Comparisons

We compared our findings to three studies of drug use: the Department of Health and Human Services' 2000 National Household Survey on Drug Use (which looks at the U.S. population), the 1999 Youth Risk Behavior Surveillance System (a national survey of high school students) and the National Institute of Justice's 2000 Preliminary Report of the Arrestee Drug Abuse Monitoring Program (which looks at arrestee populations in 27 cities). When compared to the nation as a whole, a substantially larger percentage of homicide victims had engaged in recent illegal drug use (6.3% to 47.4%). The percentages of cocaine, opiate, and cannabinoid use by homicide victims also were substantially higher than national averages. When compared with the High School Survey differences were considerably smaller. However, when compared to data from the A.D.A.M. program, the rates of use among our homicide victims looks remarkably similar to median drug use rates among male arrestees (Note- we believe this is a fair comparison considering 87% of the homicide victims in our study were male, and 75% of the victims had a criminal history).

2000 National Household Survey on Drug Use (U.S. Population Data- Ages 12 and older)	1999 Youth Risk Behavior Surveillance System Data for a males in a national sample of High School Students	Arrestee Drug Abuse Monitoring Program (A.D.A.M) (Median Data- Male Arrestee Populations in 27 Cities)	Homicide Victims: 2000-2001 (Data from Toxicology Reports)
- 6.3% used an illegal drug in the last 30 days		- 65% used an illegal drug	- 47.4% had a drug in system
- .5% used cocaine in the last 30 days	5.2% current cocaine use	- 30% used cocaine	- 13.2% tested positive for cocaine
- .1% used opiates in the last 30 days		- 6% used opiates	- 5.3% tested positive for opiates
- 4.8% used marijuana in the last 30 days	30.8% current marijuana use	- 40% used marijuana	- 36.8% tested positive for cannabinoids
- 20.6% engaged in binge drinking last month	52.3% current alcohol use	- 56.7% engaged in binge drinking last month	35.5% tested positive for alcohol (indicating recent alcohol use)

Based on the A.D.A.M. data, we believe the rates of drug use among our sample of homicide victims are well within the general rates of use among people arrested fro crimes. Therefore, we conclude that homicide victims from 2000-2001 were not engaging in drug use behavior which put them at a greater risk for homicide than anyone else with a recent history of criminal activity. In fact, drug use may not look much different than much of the city population. A recent report by the Rochester Metro Council for Teen Potential indicated recently that 43% of city teenagers had smoked marijuana within 30 days.

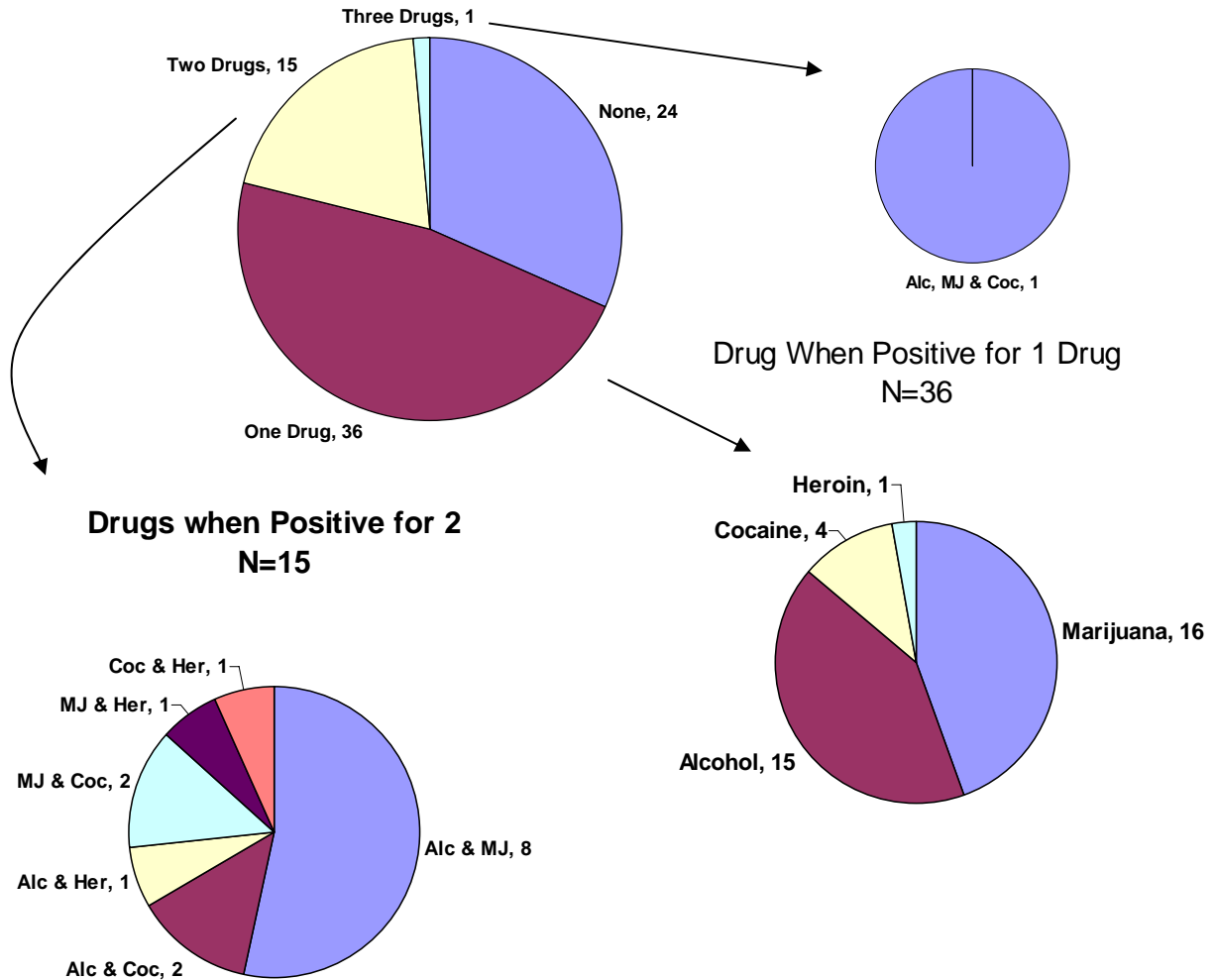
Polydrug Use

Of the homicide victims with alcohol and/or drugs in their system, very few victims showed traces of multiple drugs at the time of their death. Of all the possible combinations of alcohol, cocaine, marijuana, and opiates, the most frequent combination of drugs was alcohol and marijuana, with 12.2% of the sample testing positive for both drugs. No other combination exceeded 4% of the total sample. Although somewhat surprising, the data tells us two important things: First, that homicide victims were not “drugged out” on a variety of drugs at the time of their death, and second, that alcohol and marijuana are the most frequently used drugs in tandem for homicide victims during 2000-2001. The combined use of alcohol and marijuana was alluded to in our jail interviews, as inmates suggested that good drug dealers would not use harder drugs, but might be drinking and smoking marijuana while selling. Based on this data and the data obtained from the jail interviews, we believe marijuana and alcohol are widely used together among populations similar to the homicide victims, and because the drugs are so widely used together, they cannot be said to have a large impact upon homicides.

Figure 1 shows the number of drugs present in the homicide victims. When toxicology tests were positive for one drug that drug was most likely to be marijuana or alcohol. Multiple drugs were found in 21% of cases. With the exception of one victim who tested positive for three drugs, the other multiple drug cases involved two drugs. The most common combination was for the presence of alcohol and marijuana. Other combinations were rare as the Figure below shows.

Figure 1:

Number of Drugs and Type (N=79)



Additional Analyses: Drugs & Age

When our age variable (*vicageca*) was tested with the toxicology variables, we found evidence of statistically significant ($p < .10$) association between the *vicageca* variable and the toxicology variables *drugsys* and *cannibin*. Our testing indicated that drugs were found more often than expected in the bodies of homicide victims in the 16-25 year old age group. This finding is consistent with the overall distribution of homicide victims, as the victims in the 16-25 age group account for 48.7% of the total number of victims from 2000-2001. As 36.8% of the total sample tested positive for marijuana, we believe the finding that drug use occurred more often in the 16-25 age group further substantiates the hypothesis that the rates of drug use among homicide victims resembles not only drug use among criminal

populations, but among the city youth population in general. Although the analysis did not find a statistically significant association between *vicageca* and *opiates* or *vicageca* and *cocaine*, the lack of statistically significant associations is likely due to the relatively small incidences of their appearance within the dataset compared to cannabinoids.

Drugs & Police Section

We also analyzed our toxicology variables by section and found further evidence suggesting Clinton and Maple sections are the best sections in which to begin interventions. Our testing found a statistically significant ($p < .01$) association between the *section* variable and the toxicology variable *drugsys* (see exhibit B). Drugs (alcohol and illegal drugs) were found more often than expected in the bodies of homicide victims found in Clinton and Maple sections (note- Goodman section homicide victims also had higher than expected incidences of drug presence, but fewer than five cases occurred in the section, making a conclusion inappropriate).

Drugs & Season

Our analysis of toxicology variables by section found associations between the *season* variable and the toxicology variables *cannabis* and *alcohol*. At a statistically significant level ($p < .05$), marijuana was found more often than expected in the bodies of homicide victims in the fall months. At a statistically significant level ($p < .01$), alcohol was found more often than expected in the bodies of summer homicide victims. These findings have limited utility, however the association between alcohol and the summer months further illustrates how alcohol-related violence is exacerbated by the increase of social interaction which occurs during the summer months.

Drugs & Prior Drug Arrest

When comparing our toxicology variables with incidences of prior drug arrest for homicide victims, we found the presence of drugs in a homicide victim's body to be closely related to prior drug arrest. At a statistically significant level ($p < .01$), we found prior drug arrests more often than expected among those homicide victims with drugs (alcohol and illegal) and illegal drugs in their system. Likewise, those homicide victims who had never been arrested for drugs were found to have no drugs in their system more often than expected. Clearly, those homicide victims who were known to be involved in drugs (via criminal history) were much more likely to have had drugs in their system at their death.

Drugs & Victim Involvement

Of all the testing of the toxicology variables, the interaction between type of homicide and the presence of drugs is possibly the most significant. Our *type* variable divides homicides into three major categories: dispute, drug-robbery, and wrong place/wrong time. Those victims in the wrong place/wrong time category were the least likely to have drugs in their systems, while more than expected levels of illegal drugs were found in the bodies of victims of drug robbery homicides. We attribute this finding to those homicide victims being involved in or around the drug business, and therefore more likely than dispute or wrong place/wrong time victims to have engaged in some sort of illegal drug use. Finally, a larger than expected number of victims of disputes had alcohol in their systems. The correlation between alcohol and disputes seems clear, but in this sample is probably exacerbated by the large number of domestic dispute homicides in which the victim and suspect had been drinking prior to an argument

Implications for Intervention

Taken together, Working Paper 15: Drug Links to Homicide and this report of toxicology data are suggestive about the role of drugs in homicide cases. The analyses indicate the importance of social rather than physiological links between drugs and murder. That is, social networks which may be tied to reputations for heavy use, selling, and links to known drug related groups appear to be more significant influences than the physiological effects of drugs.

This reinforces the potential value of programs intended to limit connections to such networks by providing alternatives to young, minority males in poor neighborhoods. It also supports considering connections to drug networks as part of the process of identifying candidates for deterrence and incapacitation based programs such as Project CeaseFire and Notification of Special Enforcement (NOSE).

A Note on Methodology

Toxicology data in this analysis comes from homicide victim toxicology reports produced by the Monroe County Medical Examiner. Initially, we gathered from the Rochester Police Department, however we were unable to obtain all of the reports from RPD (because of the transition to the new Public Safety Building) so the Monroe County Medical Examiner's Office graciously provided us access to their records for the missing records. Of the 81 reports, 5 victims did not undergo toxicology tests due to prolonged hospital stays prior to death. The 5 reports with missing information were excluded from further analysis.

Using a standardized coding sheet, we recorded the presence (of lack thereof) of the following drugs: alcohol, nicotine, cocaine, opiates (heroin, opium, peyote), and cannabinoids (marijuana). From the coding sheets, we developed 8 variables which were added to an existing database of the 2000-2001 homicides.

VARIABLE (database variable name)	DATA SOURCE
Does victim have a toxicology report? (<i>toxreprt</i>)	-Existence of Medical Examiner (ME) toxicology report, obtained from either RPD or the Office of the Medical Examiner
Did victim have one or more drugs in his/her system? (Includes both illegal drugs and alcohol) (<i>drugsys</i>)	-Positive result on ME toxicology report for one or more of the following drugs in victim's body: alcohol, cocaine, opiates, and/or cannabinoids
Did victim have one or more illegal drugs in his/her system? (<i>ildrgsys</i>)	-Positive result on ME toxicology report for one or more of the following illegal drugs in victim's body: cocaine, opiates, and/or cannabinoids
Did victim have cocaine in his/her system? (<i>cocaine</i>)	-Positive result on ME toxicology report for the presence of cocaine in victim's body
Did victim have opiates in his/her system? (<i>opiates</i>)	-Positive result on ME toxicology report for the presence of opiates in victim's body
Did victim have cannabinoids in his/her system? (<i>cannibin</i>)	-Positive result on ME toxicology report for presence of marijuana in victim's body
Did victim have alcohol in his/her system? (<i>alcohol</i>)	-Positive result on ME toxicology report for the presence of alcohol in victim's body

The following table indicates additional variables used in the toxicology database. We regularly record the data in these variables as part of an ongoing homicide database, and chose to use them for comparison purposes in the toxicology database

VARIABLE (database variable name)	DATA SOURCE
Age of victim- in categories (<i>vicageca</i>)	-Reporting from Incident Reviews (categories: 0-9, 10-15, 16-25, 26-40, over 40)
Section where homicide occurs (<i>section</i>)	-Reporting from Incident Reviews (categories: Lake, Downtown, Goodman, Maple, Clinton, Genesee)
What season the homicide occurred in (<i>season</i>)	-Reporting from Incident Reviews
Did the victim have prior drug arrests (<i>vdrug</i>)	-Reporting from Incident Reviews -RPD Criminal History records
Type of victim involvement (<i>type</i>)	-Reporting from Incident Reviews (categories: no victim involvement, dispute, drug robbery)

Tests of significance are reported in these analyses for convenience of interpretation. No effort is being made to suggest that these homicide victims are a representative sample of all homicide victims.

One caution should be clear in this research. Metabolism rates across people vary and tests detect different drugs for different lengths of time. For example detection of marijuana may continue up to 30 days after use while 4-5 days is common for most other drugs. This may help explain difference in detection rates across drugs. It also means that these data, as we collected them, tell only if a substance was detected and not the victims condition at the time of death.