HOMICIDE IN NEW YORK CITY*

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THERE have been a number of past local studies of homicide. Wolfgang studied homicide in Philadelphia during the 1950s[1] and Bullock studied homicide around the same time in Houston.[2] There have been a number of other studies: Pokorny in Houston,[3] Voss and Hepburn in Chicago,[4] Block and Zimring in Chicago,[5] Herjanic and Meyers in St. Louis,[6] Constantino in Allegheny County[7] and Haberman and Baden in New York City.[8] All examined homicide at a local level, and all agree that the young, male, nonwhite population have the highest rates of homicide. This has been confirmed by the national experience. Unfortunately, the local studies are somewhat dated since the last was done somewhere around the mid-1970s.

Our study of homicide in Manhattan assessed a large number of victims during a small time period, one year, which insured standardization of data and the ability to relate findings to a specific time period. It was comprehensive in that we covered a large number of variables and examined certain variables in greater depth than had been done previously. For example, we investigated victims' alcohol levels in relation to the interval between injury and death. We looked at the use of a broad spectrum of drugs found in victims, alone or combined with alcohol, and we looked at distinctive patterns in terms of Hispanics in comparison to blacks.

Most important, our study distinguished drug-related homicides from those related to other types of criminal activities. These two types of homicides in the past have been considered together as secondary homicides, that is, homicides occurring secondarily during the commission of another crime, for example, drug dealing, robbery, burglary. These homicides have been

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compared to primary homicides; that is, homicides not related to the commission of other crimes. It is important that we differentiate these three types of homicides.

METHODOLOGY

Our subjects included all homicide victims killed in Manhattan from January 1981 through December 1981. During the summer of 1982, using a structured work sheet, researchers collected data on these victims from the autopsy records of the New York City Office of the Medical Examiner. Victims killed in the other four boroughs—the Bronx, Brooklyn, Queens and Staten Island—were excluded from the study. At the end of 1982, when the investigation of the homicides had proceeded for at least one year, the Office of the Chief of Detectives of the New York City Police Department was asked to classify the circumstances of the homicide and the relationship of the victim to the perpetrator.

Homicide was classified as drug related if drug dealing preceded the homicide, even though it involved a robbery. Actually, 1981 was the first time the Police Department used this classification. They did so because of their perception that when robbery and drug dealing were associated, the drug dealing was often primarily responsible for the homicide. Burglaries (six cases) and homicides associated with sexual assaults (five cases) were not frequent, so their categories primarily reflect robberies and disputes respectively.

Perpetrator data were not limited to those who were arrested but include all instances where the suspect was known to the police at the time of our study. Family members were defined broadly enough to include common law as well as boy or girl friend relationships. Other variables should be mentioned. Asian and white homicide victims are combined because there were only ten Asian victims. Common law relationships were considered marriages. The variable "others" in "causes of death" represents deaths from falls from heights, fire, being struck by motor vehicles, being poisoned, etc.

Because alcohol is metabolized by the body at a rate of about 0.015% per hour, the interval between injury and death was taken into consideration. Zero percent alcohol and an injury-death interval of less than one hour indicates that the victim definitely was not drinking, while 0% alcohol and injury-death interval of an hour or more means there was a possibility that the person had been drinking and that the alcohol was metabolized before death.

OBSERVATIONS

Table I shows that during 1981 578 people were killed in Manhattan, an overall rate of 40.5/100,000. As expected from previous studies, men were much more likely to be killed than women, about seven times more likely. Blacks had the greatest homicide rate, eight times the homicide rate of whites, and hispanics had four times the homicide rates of whites.

Age is very interesting. Under 10 years old, there are very few homicides, probably due to under-reporting and problems with classifications in terms of homicide in young children. Because of this, in all subsequent analyses we have eliminated victims less than 10 years of age. In doing so, we have used base rates on the population for 10 years and older. The highest rates are in the two next age groups, 10 to 24 and 24 to 30.

Table II shows age-specific rates for men by race. Blacks 25 to 34 years old had the highest rate, 408.5/100,000, and rates were high in that age group both for Hispanics and white men. In the 10-to-24-year-old and 35-to-64-year-old categories, we have the next highest rates. The 65 and older category had the lowest rates of homicide. The same ethnic pattern continues in the latter three age groups: blacks basically had twice the homicide rate of Hispanics, who had four times the homicide rate of whites.

Table III shows age-specific rates for women by race. Rates are much lower overall than those for men. In the 25-to-24-year-old category, blacks had the highest rates, but only the Hispanics in this age category had high rates and, in fact, white women 25 to 34 years old had the lowest rates of all women. In the 10-to-24-year-old and 35-to-64-year-old category, Hispanic and white homicide rates were approximately equal.

Table IV shows how circumstance of the homicide and victim-perpetrator relationship differ between men and women. More than one third of men killed in Manhattan were killed during drug-related homicides, a startling finding that certainly differs from the rest of the United States. Another fourth were killed during robberies or burglaries, so that two thirds of male homicides are considered secondary homicides, which clearly differs from the rest of the United States as a whole. Two thirds of the women, in contrast, were killed during disputes, that is, they were primary homicides. Sex-related homicides were very infrequent.

Both men and women have a high proportion of "friends and acquaintances" as perpetrators, and women had a proportionately greater percentage of family members as perpetrators compared to men. Not shown in this slide is a Chi square analysis for both sexes, which demonstrated that drug-

TABLE I. MANHATTAN MURDER STATISTICS, 1981.

	Number of victims	*Population*	*Rate per 100,000*
All groups	578	1,428,285	40.468
Sex: Male	500	669,704	74.656
Female	78	758,581	10.282
Race: Black	293	290,218	100.959
Hispanic	180	336,247	53.532
White	105	801,820	13.095
Age: (years)			
Under 10	3	131,839	2.276
10-24	148	284,192	52.077
25-34	203	308,964	65.703
35-64	199	498,853	39.897
65 and older	25	204,437	12.229

TABLE II. AGE SPECIFIC HOMICIDE RATES* FOR MEN BY RACE

Ages (years)	*Black*	*Hispanic*	*White*
10-24	191.4	107.9	25.8
25-34	408.5	226.4	226.2
35-64	190.2	94.6	25.7
65 and older	57.7	38.0	9.2

*Rates per 100,000

TABLE III. AGE SPECIFIC HOMICIDE RATES* FOR WOMEN BY RACE

Ages (years)	*Black*	*Hispanic*	*White*
10-24	25.1	8.4	10.9
25-34	59.2	28.6	1.9
35-64	22.9	6.9	5.5
65 and older	8.3	0.0	7.6

*Rates per 100,000

related homicides were more likely to involve friends and acquaintances, robberies to involve strangers and disputes to involve family members.

Table V shows rates of various types of homicide by sex of the victim. Men are 20 times more likely than women to be victims of drug-related homicides, and the least difference between rates for men and women are those for disputes, where men are only four times more likely than women to be

TABLE IV. CIRCUMSTANCES AND VICTIM—PERPETRATOR RELATIONSHIPS

	Males		*Females*	
	Number of victims	*(percent)*	*Number of victims*	*(percent)*
Circumstances				
Drug related*	156	(37.6)	9	(13.8)
Robbery, burglary or other criminal act	103	(24.8)	13	(20.0)
Disputes or sex related	156	(37.6)	43	(66.2)
	415	(100.0)	65	(100.0)
		(x^2=20.82, d.f.=2, p.<0.0005)		
Victim-perpetrator relationship:				
Family	27	(6.4)	24	(38.1)
Friend or acquaintance	296	(70.1)	35	(55.6)
Stranger	99	(23.5)	4	(6.3)
	422	(100.0)	63	(100.0)
		(x^2=61.64, d.f.=2, p.<0.0005)		

*Includes robberies during drug deals

killed in disputes. Men are much more likely to be killed by strangers, and there was virtually no difference between rates for men and women killed by family members. This is consistent with the previous Chi square analysis, which found more male victims of secondary homicides, more female victims in primary homicides and that primary homicides were more likely to involve family members.

Table VI shows that blacks have the highest rates for drug-related homicides as well as disputes. Whites have the lowest rates for drug-related homicides than any other category, only 2.4/100,000. Blacks have the highest rates of homicides at the hands of friends and acquaintances.

Table VII shows rates of homicides by age of the victims. Rates of drug-related and dispute homicides were higher in the younger age groups. The smallest difference between the young and over-65 groups was in the category of robberies. Friend and acquaintance homicides were higher among younger age groups, a reflection of drug-related homicides among friends or acquaintances.

Table VIII shows manner of homicide by sex of the victim. The dramatic difference is that men are more likely to be killed by firearms, (roughly two thirds of the homicides) whereas women are more likely killed by other means. The types of firearms used again reflects the national experience.

TABLE V. RATES OF TYPES OF HOMICIDE BY SEX OF THE VICTIM*

	Sex		*Ratio of male to female*
	Male	*Female*	
Circumstances:			
Robbery	17.1	1.9	9.13
Drug related	25.9	1.3	19.96
Disputes	25.9	6.2	4.18
Victim-perpetrator relationship:			
Family	4.5	3.5	1.30
Friends	49.1	5.0	9.74
Strangers	16.4	0.6	28.53

*Rates per 100,000 are based on the population aged 10 years and over.

TABLE VI. RATES OF TYPES OF HOMICIDE BY RACE OF THE VICTIM*

	Blacks	*Hispanic*	*Whites*
Circumstances:			
Robbery	19.8	11.4	4.3
Drug related	36.9	18.6	2.4
Disputes	40.8	21.4	4.5
Victim-perpetrator relationship:			
Family	13.2	3.9	0.8
Friends	68.1	36.1	7.2
Strangers	15.2	12.5	3.8

*Rates per 100,000 are based on population aged 10 years and over.

TABLE VII. RATES OF TYPES OF HOMICIDE BY AGE OF THE VICTIMS*

	Age (years)			
	10-24	*25-34*	*35-64*	*65 and older*
Circumstances:				
Robbery	8.4	10.0	9.8	3.9
Drug related	17.2	21.0	10.0	0
Disputes	16.5	23.0	15.2	1.4
Victim-perpetrator relationship:				
Family	3.2	4.5	4.4	2.0
Friends	31.7	39.5	22.9	2.0
Strangers	9.9	12.3	15.7	2.4

*Rates per 100,000 are based on population aged 10 years and over.

These were usually handguns and large handguns. For example, 38 caliber guns accounted for 56%, 22 caliber for 14%, 25 caliber for 9% and 32 caliber for 11%. Firearms were more likely to be used during drug-dealing homicides and robberies, whereas other means of killing were more likely during disputes. This may have certain implications for gun-control legislation.

Table IX shows the location of the homicide by sex of the victim. Many people were killed inside buildings, where roughly 62% of women were killed. Many women were killed at their homes or within their neighborhood, that is, within 10 blocks of their residence. Two thirds of men were killed outside their neighborhoods. Of victims killed in buildings, women were more likely to be killed in bedrooms and bathrooms. Men, on the other hand, were more likely to be killed in living rooms, hallways, bars, restaurants or work places. Outside buildings, women were more likely killed in such places as parks, yards, parking lots, or near rivers while men were more likely to be killed in streets, in cars, on public transit facilities or on roofs.

Table X shows when homicides occurred. Many occur at night and 38% occur between 8:00 P.M. and 1:00 A.M. We did not find a large difference in terms of the day of the week. The slight increase on Monday probably reflects discovery of bodies on Monday, and it was impossible to place a time of death. There is no increase on weekends, which has been found in a number of other studies. This may reflect the circumstances of the homicide, that is, drug dealing, robberies and other criminal activities, There were no differences in terms of time of the year, and when homicide took place was not related to sex, age or race of the victim.

Table XI presents data on blood alcohol levels. Thirty-eight per cent of male and 36% of female victims had blood alcohol levels of 0.01 percent or greater. In addition, 8% of men and 7% of women had no alcohol present in their blood but died longer than one hour after injury and so they could have been drinking at the time of injury. Chi square analysis of the circumstances of the homicide in relation to the presence of alcohol in the victim's blood found that victims of disputes were more likely to have alcohol levels of 0.10% or greater; victims of robberies either had no alcohol or alcohol levels below 0.1% and victims of drug-related homicides were more likely to have no alcohol levels.

Table XII summarizes data on the drugs of abuse found in victims. We excluded drugs that could have been used in treating victims before death, for example, Lidocaine. Quinine is somewhat of a problem, reflecting ei-

TABLE VIII. MANNER OF HOMICIDE BY SEX OF VICTIM.

	Men		*Women*	
	Number of victims	*(percent)*	*Number of victims*	*(percent)*
Cause of death				
Firearms	278	(62.6)	26	(36.1)
Stabbing	114	(25.7)	24	(33.3)
Assault, asphyxia, other	25	(5.6)	11	(15.3)
Multiple causes	27	(6.1)	11	(15.3)
	444	(100.0)	72	(100.0)
	(x^2=24.12, d.f.=3, p.=0.0001)			

TABLE IX. LOCATION OF HOMICIDE BY VICTIM'S SEX

	Men		*Women*	
	Number of victims	*(percent)*	*Number of victims*	*(percent)*
Location of injury				
A. Inside a bar or restaurant	32	(7.0)	2	(2.6)
Inside other buildings	187	(40.6)	47	(61.9)
Outside of buildings	241	(52.4)	27	(35.5)
	460	(100.0)	76	(100.0)
	(x^2=12.34, d.f.=2, p.=0.0021)			
B. At victim's residence	88	(20.4)	32	(45.7)
Within ten blocks of residence	81	(18.8)	11	(15.7)
Beyond ten blocks of residence	262	(60.8)	27	(38.6)
	431	(100.0)	70	(100.0)
	(x^2=21.55, d.f.=2, p.=0.0001)			

ther heroin or gin and tonic so we excluded it from subsequent analyses. Almost 30% of men and 17% of women had one or more of these drugs in their bodies at the time of death. The most frequently found single drug was morphine. Seven percent of victims had two or more drugs in their blood at the time of death, and usually at least one or two of these were opioids.

In the next analysis we excluded quinine and phenocyclidine, and combined propoxyphene with sedatives and tranquilizers. This gave us five categories of drugs and one category of "no drugs." We then analyzed the type of drug in relation to the characteristics of the victim and the homicide and

TABLE X. TIMING OF HOMICIDES.

Time of day	*Number of victims*	*Percent*
8 A.M. to 2 P.M.	73	(13.3)
2 P.M. to 8 P.M.	141	(25.8)
8 P.M. to 1 A.M.	210	(38.3)
1 A.M. to 8 A.M.	124	(22.6)
	548	(100.0)
Day of week		
Monday	89	(17.9)
Tuesday	71	(14.2)
Wednesday	52	(10.5)
Thursday	57	(11.5)
Friday	77	(15.5)
Saturday	78	(15.7)
Sunday	73	(14.7)
	497	(100.0)
Time of year		
December-February	139	(24.8)
March-May	136	(24.2)
June-August	157	(28.0)
September-November	129	(23.0)
	561	(100.0)

TABLE XI. BLOOD ALCOHOL LEVELS OF HOMICIDE VICTIMS

	Men		*Women*	
	Number of victims	*(percent)*	*Number of victims*	*(percent)*
0% and <1 hr. IDI*	264	(53.7)	49	(60.5)
0% and >1 hr. IDI*	40	(8.1)	3	(3.7)
0.01-0.09%	89	(18.1)	14	(17.3)
≥0.10%	99	(20.1)	15	(18.5)
	492	(100.0)	81	(100.0)

*Injury-Death Interval

found there were no differences. We looked at the presence of these drugs in a control population, that is, people who died in New York City other than from homicide, including 131 people dying of natural or undetermined causes, and we excluded those dying from suicide, automobile accidents and in hospitals.

TABLE XII. DRUGS OF ABUSE FOUND IN HOMICIDE VICTIMS

	Men		*Women*	
	Number of victims	*(percent)*	*Number of victims*	*(percent)*
Morphine and other opioids alone	45	(9.4)	4	(5.1)
Methadone alone	10	(2.1)	2	(2.6)
Cocaine alone	12	(2.5)	2	(2.6)
Sedatives or tranquilizers alone	19	(4.0)	1	(1.3)
Propoxyphene alone	3	(0.6)	1	(1.3)
Phencyclidine alone	4	(0.8)	0	(0.0)
Quinine alone	7	(1.5)	1	(1.3)
Multiple drugs above*	37	(7.7)	2	(2.6)
None of the drugs above	341	(71.4)	65	(83.2)
Totals	478	(100.0)	78	(100.0)

We found that homicide victims were four times more likely than controls to have morphine in their blood and three times more likely to have multiple drugs among which morphine and other opioids predominated. The control group were twice more likely than the homicide victims to have sedatives and tranquilizers in their blood at the time of death, and there was no difference between the control group and the homicide group in terms of methadone.

Keeping in mind that there were no significant differences in the analysis between the type of drug and the characteristics of the victim of the homicide, we felt comfortable in combining all classes of drugs into drug positive or negative groups. We then looked at the association of any drug and the presence of alcohol.

In Table XIII we have data only for men because the number of females was too small for valid Chi square analysis. The presence or absence of drugs and alcohol was analyzed in relation to the circumstances of the homicide. We found that victims of drug-related homicides were more likely to have only drugs present in their blood, victims of robberies were more likely to have neither alcohol nor drugs and victims of disputes had alcohol either with or without drugs.

CONCLUSIONS

What does all this mean? Although the overall 1981 homicide rate for New York City, including all five boroughs, was 25.8/100,000, the rate for Man-

TABLE XIII. PRESENCE OF ALCOHOL AND/OR DRUGS IN THE BLOOD OF VICTIMS BY CIRCUMSTANCES OF THE HOMICIDE

	Men—number (percent)			*Women—number (percent)*		
	Drug related	*Robbery*	*Disputes*	*Drug related*	*Robbery*	*Disputes*
Alcohol and drugs present	16 (10.3)	6 (5.8)	21 (13.5)	0 (0.0)	2 (15.4)	2 (4.7)
Only alcohol present	25 (16.0)	27 (26.2)	60 (38.5)	1 (11.1)	2 (15.4)	17 (39.5)
Only drugs present	40 (25.6)	11 (10.7)	14 (9.0)	1 (11.1)	0 (0.0)	5 (11.6)
Alcohol or drugs not present	75 (48.1)	59 (57.3)	61 (39.0)	7 (77.8)	9 (69.2)	19 (44.2)
Total	156 (100.0)	103 (100.0)	156 (100.0)	9 (100.0)	13 (100.0)	43 (100.0)

(Men: $x^2=38.50$, d.f.$=6$, p.<0.00005)
(Women: x^2 not valid because of low expected cell frequencies)

hattan alone (40.5) equalled that of Detroit in 1981, which led the United States. So Manhattan had a very high rate of homicide.

We found certain trends reported in other local studies and national studies to be true, that is, the homicide rate is increased among men, the young and nonwhite populations. Characteristics of male as opposed to female victims clearly differed and were related to the circumstances of the homicides.

It is important to differentiate criminally-related secondary homicides into those related to drugs as opposed to those related to robberies and other crimes. In our study, the overall rate for men of primary homicides (not committed during another crime) was much less than had been reported by Jason[9] overall in the United States, although the percentage of female victims, roughly 66%, was about equal to the national experience in terms of primary homicides. In Manhattan and probably in other large metropolitan areas, primary homicides are a smaller proportion of homicides given greater numbers of secondary homicides. The proportions of secondary homicides in New York may actually be greater than we found because these homicides would be more likely to have an unknown perpetrator or circumstances and be unclassified in our data.

Three types of homicide in our study clearly differed in terms of victims and characteristics. Primary homicide resulting from disputes were more likely to involve female victims, family members (including boy or girlfriends); and victims of disputes were more likely killed by stabbing, assault or means other than firearms. Victims of disputes were more likely to have positive blood alcohol levels, with or without drugs. One might speculate as to the role of alcohol in terms of decreasing inhibition resulting in verbal or physical provocation on the part of the victim. The low number of sexually related homicides is consistant with other studies which show that they are not frequent and in most cases involve sexual contact between consenting adults as opposed to rape.[15]

Homicides related to drugs were more likely to involve victims killed by friends or acquaintances using firearms. Narcotics rather than alcohol were found in the blood of these victims. Compared to people dying from nonviolent causes, these homicide victims were more likely to have narcotics in their bloodstreams, though there was no difference in terms of methadone. Rather than the direct pharmacological effects of drugs in terms of homicides, the effects are indirect and involve drug-seeking activity. The fact that one third of male victims in Manhattan died of drug-related homicides documents the magnitude of the drug problem, at least in New York City.

Last, the third type of homicide related to other criminal activities, predominantly robbery, was more likely to involve strangers and firearms. Victims were more likely not to have drugs or alcohol in their bodies at the time of death. This is the type of homicide most feared by the public because it is fairly independent of the role of the victim other than as present at a particular geographic area.

Although firearms were frequently used in all types of homicide, they were more likely to be used in secondary homicides. This is in disagreement with national statistics cited by Jason,[9] who found that overall in the United States firearms were more likely to be associated with primary homicides. In large cities a firearm is an indispensable part of an illicit business. However, in homicides resulting from disputes, decreasing the availability of guns may prevent what might have been an assault from developing into a homicide.

Last, why do blacks and Hispanics have increased rates of homicide? Steve Messner and I have done a study using neighborhoods as units of analysis and have found that it is absolute poverty and, in some cases, marital disruption that accounts for these high rates, not race or culture.

Many factors associated with an increased risk of homicide fall within medicine's realm of responsibility, for example, the breakdown of interpersonal relationships between victim and perpetrator, psychiatric illness and the management of alcohol and drug abuse while such other factors as drug traffic, other crimes, firearms and poverty fall within public health's responsibility.

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