

EPIDEMIOLOGIC CHARACTERISTICS OF PRIMARY HOMICIDES IN THE UNITED STATES

JANINE JASON,¹ MELINDA FLOCK² AND CARL W. TYLER, JR.¹

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Homicide is one of the five leading causes of death for all persons 1-44 years of age. Over half of the homicides occurring in 1979 did not involve the perpetration of another crime. The authors have defined these as primary homicides and suggest that these deaths require the formulation of public health and social services prevention strategies. An epidemiologic assessment of primary homicides in the United States for 1976 through 1979 showed the following. Sixty per cent of primary homicides were male victim/male offender events; 40% involved a female as a victim and/or as an offender. Three per cent of primary homicides were female victim/female offender events; 97% involved a male as a victim and/or as an offender. Primary homicides involving female victims or offenders were more frequently intrafamilial than those involving males, but rates of intrafamilial homicides by males were greater than those involving females. The preponderance of all primary homicides occurred between acquaintances, but the relationship between victim and offender varied with age, sex, and race. The weapons used varied with the victim's and offender's age, sex, and race, and with the relationship between victim and offender. Based on the described patterns, prevention measures should be divided into three broad areas: intrafamilial violence, extrafamilial violence, and male patterns of aggression. Key target populations for the first area include females, rural households, and the very young or very old. A key target population for the second area is teenage males.

homicide; public health; violence

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Abbreviations FBI-UCR, Federal Bureau of Investigation-Uniform Crime Reporting; SMSA, Standard Metropolitan Statistical Area

¹ Center for Health Promotion and Education, CDC, Atlanta, GA

² Family Planning Evaluation Division, Center for Health Promotion and Education, CDC, Atlanta, GA.

Send reprint requests to: Dr. Jason, Office of the Director, Center for Health Promotion and Education, CDC, Atlanta, GA 30333

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In 1978, homicide was one of the five leading causes of death for persons between one and 44 years of age (1). Annually, over 630,000 potential work-years are lost because of homicide. Furthermore, it is one cause of death that has increased in incidence over this century and has thus caused intensifying public concern. Previous studies of homicide have discussed victim precipitation of the event (2), regional subcultures of violence (3-6), the role of weapons (7, 8), the role of alcohol (9-11), and victim-offender relationships (12). In a previous paper (13), we suggested that it would be useful to distinguish homicides not occurring during the perpetra-

tion of another crime (primary homicides) and those occurring during the perpetration of another crime (secondary homicides).

We propose that primary homicides are of public health concern. This suggestion is made for three reasons. First, national law enforcement documents have expressed concern that the high proportion of homicides by family or acquaintances of the victims is indicative that "murder is largely a societal problem beyond the control of the law enforcement community" (14). Second, homicides occurring as a result of personal disagreements or conflicts have been cited as a targeted public health issue in the Surgeon General's "Objectives for the Nation" (15). Third, the foundations for medical and public health involvement in this problem have already been laid in the area of family violence (16–20).

Characterization of the problem has been an essential step for the formulation of prevention and intervention measures in the areas of child abuse (21), spouse abuse (20), and family violence (17). Feeling that an epidemiologic characterization of primary homicide was equally essential for determining the role of non-law enforcement agencies in the area of homicide, we analyzed data on primary homicides that occurred from 1976 through 1979 in the United States.

MATERIALS AND METHODS

Law enforcement agencies across the United States voluntarily contribute case information on a monthly basis to the Federal Bureau of Investigation-Uniform Crime Reporting Program (FBI-UCR) for eight Crime Index offenses. Details of this reporting program are provided elsewhere (13, 14). Murder and nonnegligent manslaughter together constitute one of these eight reportable offenses, a category that is defined as follows:

The willful (nonnegligent) killing of one human being by another

The classification of this offense, as in all other Crime Index offenses, is based solely on police investigation as opposed to the determination of a court, medical examiner, coroner, jury, or other judicial body. Not included in the count for this offense classification are deaths caused by negligence, suicide, or accident; justifiable homicides, which are the killings of felons by law enforcement officers in the line of duty or by private citizens; and attempts to murder or assaults to murder, which are scored as aggravated assaults (14, p 6)

Over 96 per cent of homicide reports are accompanied by supplementary data concerning details about the victim, offender, and event (Supplementary Homicide Report). We assume that these supplementary data are representative of all offenses. Identification of primary homicides is based upon FBI-UCR information concerning the circumstances associated with the homicide (13, 14). The term "primary homicide" refers to those homicides identified as definitely not occurring during the perpetration of another criminal act (13).

Ninety-eight per cent of all primary homicide incidents had only one victim. The offender was identified in 93 per cent of all primary homicide incidents; 93 per cent of these primary homicide incidents with an identifiable offender had only one offender. In incidents involving more than one victim and/or offender, only the first-specified offender and the first-specified victim are used in analyses of weapon usage, relationships, and circumstances. Multiple victims or offenders are not listed or specified in any predetermined order for any given incident, (FBI-UCR, personal communication, 1981). When racial comparisons are made, they will be made for only the two predominant categories, i.e., white and black. These two categories include 98 per cent of all victims and 91 per cent of all offenders.

Incidence figures are given in regard to the victims or to the offenders; they will, therefore, be noted as victim-specific or offender-specific. Numerators for national

incidence figures presented here were calculated as follows: (Number of all primary homicide victims or offenders with the described characteristics) \times 1.04. The factor 1.04 is based on the FBI-UCR estimate that 96 per cent of all homicides are represented by supplementary data. Incidence figures for Standard Metropolitan Statistical Areas (SMSA), non-SMSAs, and regions are based on data from tables 1 and 3 in reference 14. SMSAs can be only broadly defined as urban areas; non-SMSAs as rural areas. Population estimates were obtained from the US Bureau of the Census. All rates are given per 100,000 population with the described characteristics.

RESULTS

Victims

Between 1976 and 1979, 63 per cent of all homicide victims died from assaults not related to another crime. Racial and sexual proportions did not change in this time period. Sex- and race-specific rates for 1979 are given in table 1A. The 1979 rate for black males was 7.3 times that for white males; the rate for black females was 5.8 times that for white females. For the entire time period, the rate for male victims was 3.5 times that for female victims.

Figure 1 gives victim- and age-specific incidence rates for primary homicide. The mean and median ages of the victims declined slightly between 1976 and 1979 from 33.5 years to 32.8 years and from 31 years to 30 years, respectively. The overall mean and median ages of the victims were 33.1 years and 30 years, respectively. These ages varied inversely with the closeness of the relationship between victim and offender: The mean and median ages of the victims were 36.3 years and 34 years, respectively, when the homicide was intrafamilial; 33.0 years and 29 years, respectively, when it occurred between acquaintances; and 31.4 years and 28 years, respectively, when it

TABLE 1
Primary homicide rates, United States, 1979*

Race	Sex	
	Male	Female
A. <i>Victim-specific rates, by sex and race of the victim†</i>		
White (<i>n</i> = 6242)	5.4	1.6
Black (<i>n</i> = 5851)	39.2	9.3
Victim <i>N</i>	9408	2685
B. <i>Offender-specific rates, by sex and race of the offender‡</i>		
White (<i>n</i> = 5820)	5.6	0.9
Black (<i>n</i> = 5994)	40.3	9.5
Offender <i>N</i>	9747	2067

* Rate is calculated as $(1.04 \times \text{number of victims or offenders listed on the Supplementary Homicide Report}) / (\text{US population})$. It is expressed as the rate per 100,000 persons.

† Excludes 282 victims of races other than white or black or of unknown race or sex.

‡ Excludes 1263 offenders of races other than white or black or of unknown race or sex.

occurred between strangers. This pattern was true for either sex and for whites and blacks.

Offenders

Between 1976 and 1979, 75 per cent of all homicide offenders were involved in primary incidents. As with victims, racial and sexual proportions were stable over the four-year period. Sex- and race-specific rates for 1979 are given in table 1B. The rate for black male offenders was 7.2 times that for white males; the rate for black female offenders was 10.6 times that for white females. For the entire time period, the rate of homicide by male offenders was 4.6 times that by female offenders.

Figure 2 gives offender- and age-specific incidence rates for primary homicide. The mean age of the offenders was 32.4 years; the median age was 29 years. As with victims, the mean and median ages of the offenders were greatest when the involved parties were family

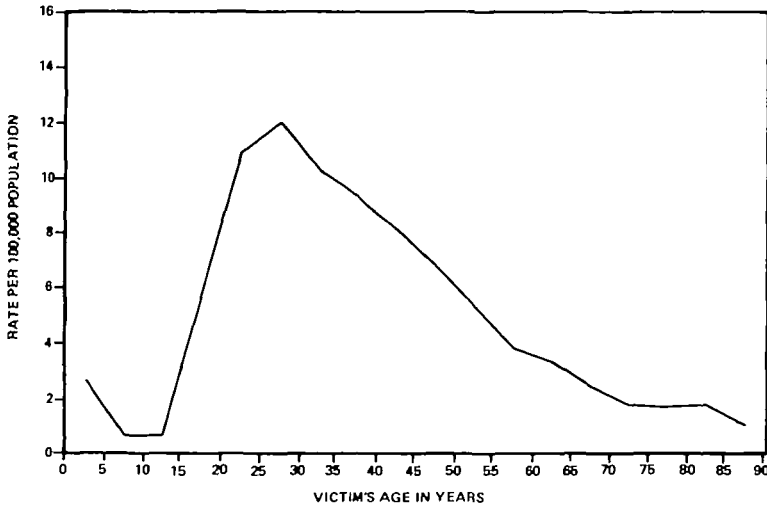


FIGURE 1. Victim-specific primary homicide rates, by age of victim, United States, 1979. Rates are calculated as (number of victims reported $\times 1.04$)/(US population). Primary homicides are defined as those not occurring during the perpetration of another crime. $N = 12,241$; this excludes 134 victims of unknown age

members (mean 35.7 years; median 32 years); followed by when they were acquaintances (mean 32.6 years; median 28 years); and when they were strangers (mean 30.1 years; median 26 years). This pattern was true for both sexes and for whites and blacks.

Victim/offender

General. The victim was of the same race as the offender in 94 per cent of pri-

mary homicide incidents in which the race of both victim and offender was known. Both the victim and offender were male in the majority of incidents (table 2). Female offender/male victim incidents were proportionately more common in blacks than in whites.

Relationship between victim and offender. The distribution of identified victim/offender relationships did not change over this time period, but the pro-

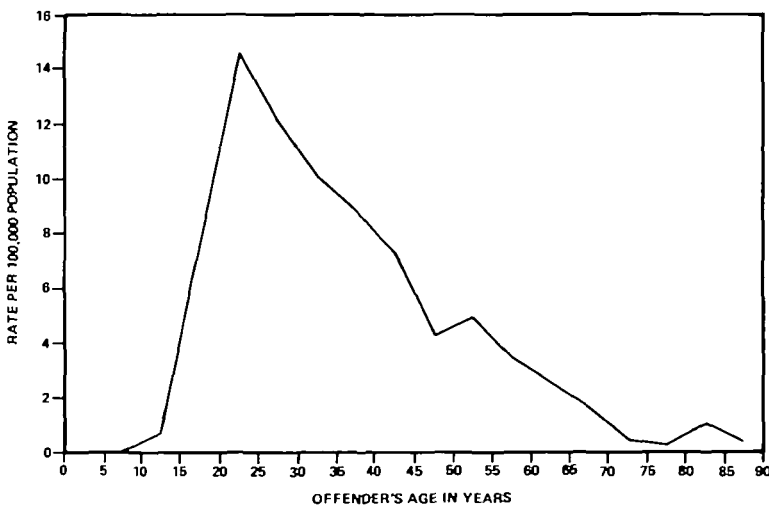


FIGURE 2. Offender-specific primary homicide rates, by age of offender, United States, 1979. Rates are calculated as (number of offenders reported $\times 1.04$)/(US population). Primary homicides are defined as those not occurring during the perpetration of another crime. $N = 11,909$; this excludes 1168 offenders of unknown age.

TABLE 2
Per cent distribution for first-specified offender's sex and first-specified victim's sex, by race of the first-specified victim, primary homicides, United States, 1976-1979*

	White	Black
Male/male	62.4	59.1
Female/female	2.3	3.2
Female/male	12.2	20.2
Male/female	23.1	17.5
Total %	100.0	100.0
Incident N†	20,025	21,437

* In incidents involving multiple victims or offenders, these are not listed in any predetermined order (FBI-UCR, personal communication, 1981).

† Excludes 3990 incidents in which the race of the first-specified victim was unknown or other than black or white or in which the victim or offender was of unknown sex.

portion of unidentified offenders increased. Over the entire period, in 12.5 per cent of SMSA and 4 per cent of non-SMSA homicide incidents an offender was not ascertained. When the offender could be determined, 29 per cent of SMSA and

36 per cent of non-SMSA homicides were intrafamilial; 59 per cent and 56 per cent, respectively, involved acquaintances; and 12 per cent and 8 per cent involved strangers.

Relationships varied significantly with the race and sex of the victim and offender; sex was the more dramatic factor (table 3). White females were involved mainly in intrafamilial homicides; black females, in situations involving family or acquaintances; all males, in situations involving acquaintances. However, both victim-specific and offender-specific familial homicide rates for males (1.8 for victims; 1.9 for offenders) were greater than those for females (1.2 for victims; 1.0 for offenders). Homicides involving strangers were proportionately more common among males. Blacks were involved in a smaller proportion of homicides relating to family and strangers and a higher proportion of homicides involving acquaintances than were whites. Specified relationships between victim and offender also

TABLE 3
Per cent distribution of the relationship between the first-specified victim and the first-specified offender, by race and sex of the victim and between the first-specified offender and the first-specified victim, by race and sex of the offender, primary homicides, United States, 1976-1979*

Relationship	White male	White female	Black male	Black female	Total†
<i>First-specified victim</i>					
Family	21	57	20	43	27
Acquaintance	49	32	62	47	52
Stranger	15	4	9	3	10
Unidentified	15	6	9	6	11
Total %‡	100	100	100	100	100
Incident N	16,591	5,354	17,942	4,619	44,506
<i>First-specified offender</i>					
Family	27	66	19	49	29
Acquaintance	52	29	65	46	55
Stranger	13	3	10	3	10
Unidentified	7	2	5	2	5
Total per cent‡	100	100	100	100	100
Incident N	16,502	2,900	17,009	4,998	41,409

* Information given is only for first-specified victim and first-specified offender in each incident. In incidents involving multiple victims or offenders, these are not listed in any predetermined order (FBI-UCR, personal communication, 1981).

† Totals exclude 946 or 4043 incidents involving victims or offenders of other races, unknown race, or unknown sex.

‡ Total per cent may not equal sum because of rounding

varied with the offender's and victim's age. At all ages, the majority of homicides involved family or acquaintances; however, family involvement was least common, and involvement with strangers was most common, when the victim or offender was a teenager (figures 3 and 4).

Weapons used. Weapons used varied with the age of the victim and the offender; however, after age nine years for the victim and for almost all ages for offender, the majority of homicides involved firearms. Weapons used also varied with race and with the sex of the victim and offender (table 4). Overall differences in distribution between blacks and whites were slight; sex was a more dramatic factor. Male offenders used a higher proportion of guns and a smaller proportion of knives than did female offenders, except

when the victim was a white male. Approximately one third of black female offenders used knives; this proportion was much higher than that for any other offender group, was present at all ages for offender, and was not affected by the sex of the victim. Although female offenders used knives as frequently for male as for female victims (26 per cent and 28 per cent, respectively), they used guns almost twice as often for male victims as for female victims (65 per cent and 36 per cent, respectively). Male offenders used guns and knives only slightly more frequently for male compared with female victims (68 per cent vs. 64 per cent, respectively, for guns; 20 per cent vs. 14 per cent, respectively, for knives). When the victim was a female, male offenders used a higher proportion of guns and a smaller

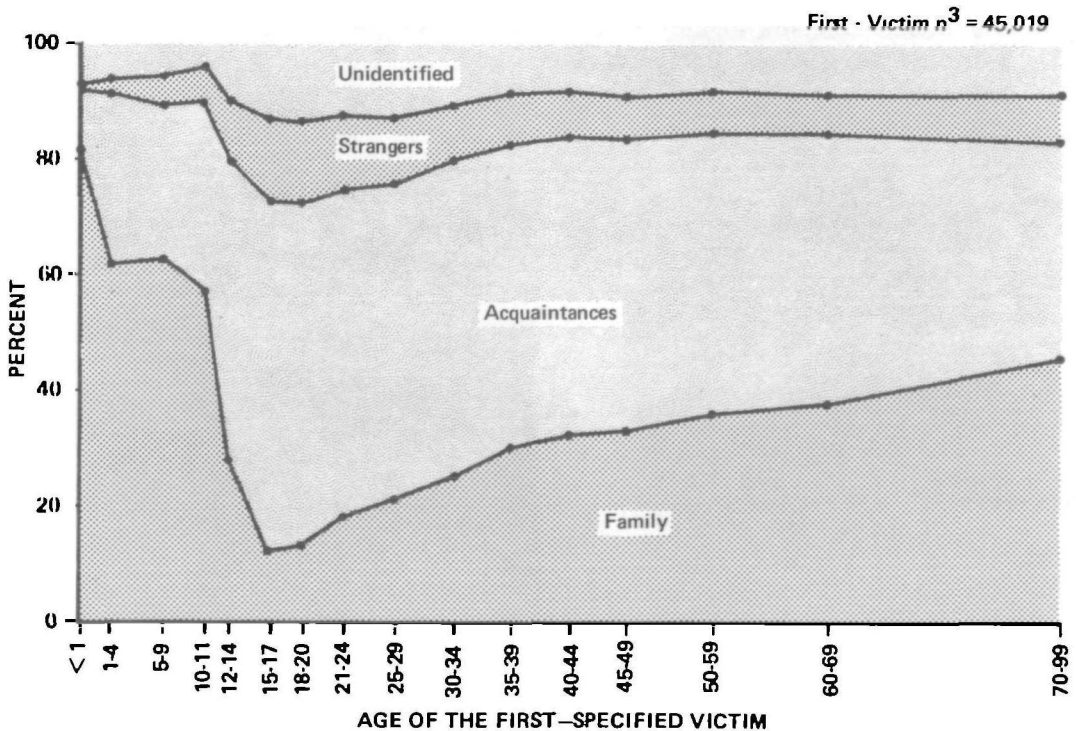


FIGURE 3 Victim-specific per cent distributions of age of first-specified victim by relationship between first-specified victim and first-specified offender. Primary homicides, United States, 1976-1979. Primary homicides are defined as those not occurring during the perpetration of another crime. In incidents involving multiple victims or offenders, these are not specified in any predetermined order (FBI-UCR, personal communication, 1981). $N = 45,019$, this excludes 433 first-specified victims of unknown age

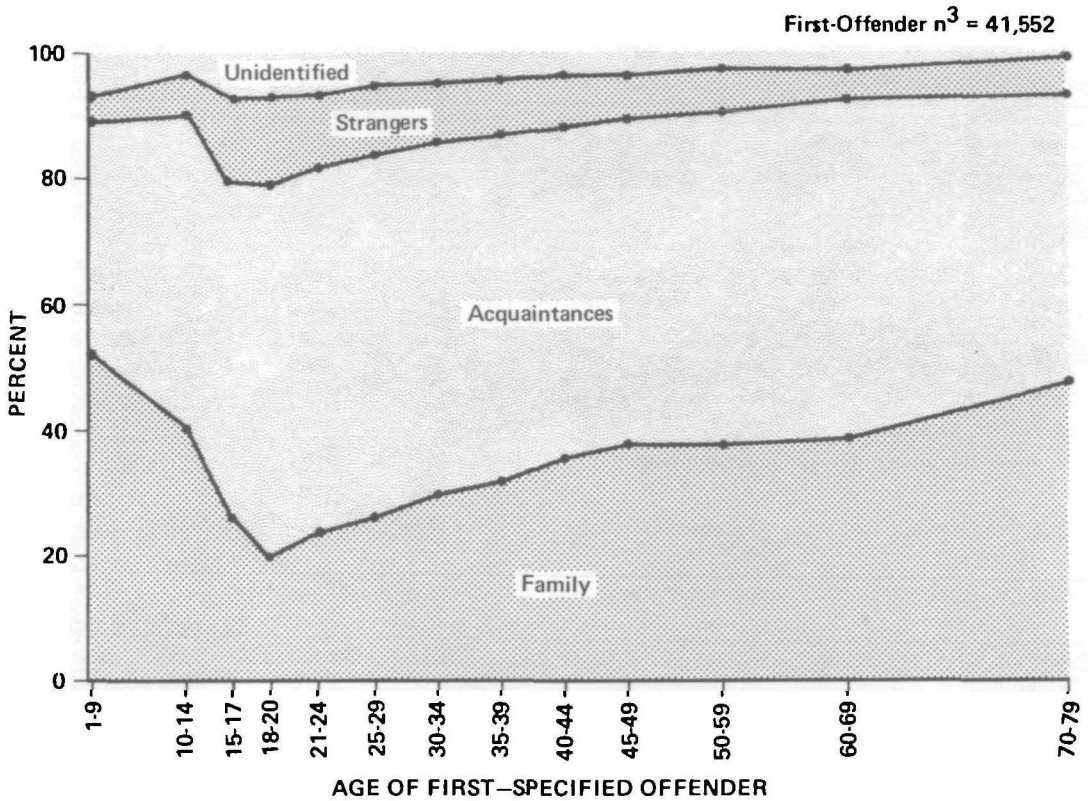


FIGURE 4. Offender-specific per cent distributions of age of first-specified offender by relationship between first-specified offender and first-specified victim. Primary homicides, United States, 1976–1979. Primary homicides are defined as those not occurring during the perpetration of another crime. In incidents involving multiple victims or offenders, these are not specified in any predetermined order (FBI-UCR, personal communication, 1981). *N* = 41,552, this excludes 3900 first-specified offenders of unknown age.

TABLE 4
Per cent distribution of weapons used, by race and sex of the first-specified victim and sex of the first-specified offender, primary homicide incidents, United States, 1976–1979*

Weapon	Victim							
	White male		White female		Black male		Black female	
	MO†	FO†	MO	FO	MO	FO	MO	FO
Guns	66	75	64	33	73	60	66	40
Cutting instruments	20	13	12	17	19	34	16	36
Other‡	14	12	24	50	8	6	18	24
Total %	100	100	100	100	100	100	100	100
Incident <i>N</i>	12,506	2442	4625	452	12,668	4328	3748	693

* Excludes 3990 incidents in which the sex of the first-specified victim was unknown, or the race of the first-specified victim was unknown or other than white or black, or the sex of the first-specified offender was unknown. In incidents with more than one victim and/or offender, these are not specified in any predetermined order (FBI-UCR, personal communication, 1981)

† Male offender (MO); female offender (FO).

‡ The category "other" includes blunt objects, bodily part, poison, arson, narcotics or drugs, strangulation, asphyxiation, and the FBI-UCR category "other."

proportion of knives than did female offenders (64 per cent vs. 36 per cent, respectively, for guns; 14 per cent vs. 28 per cent, respectively for knives). When the victim was a male, this pattern was true for blacks, but not for whites.

Weapons used also varied with the relationship between the victim and offender. Blacks consistently used a relatively high proportion of knives in homicides involving acquaintances and of guns in homicides involving strangers; this was independent of the victim's sex. White male offenders used a relatively high proportion of guns in homicides involving family and of knives in homicides involving strangers; this was independent of the victim's sex.

Associated circumstances. Four per cent of incidents were reported to involve a lover's triangle. This was proportionately most common when victim and offender were acquaintances and when they were 30–34 years of age. Gang fights were involved in 1 per cent of incidents and for these, peak victim and offender ages were 15–19 years. Fights over money or property were noted in 5 per cent of cases. They were proportionately a more common circumstance among acquaintances than among other relationship categories and were proportionately more common for victims 70–79 years or 55–59 years of age and offenders 75–79 years of age than for other age groups. Lastly, the general category of "arguments" was recorded in 55 per cent of cases. This was most common for intrafamilial homicides and at ages 35–39 years for victims and ages 45–49 years for offenders. Categories that were seldom recorded included "child killed by babysitter," "brawl due to the influence of alcohol," "brawl due to the influence of narcotics," and "other."

DISCUSSION

Homicide as a cause of death has excited the interest of social scientists, criminologists, and psychologists. Public

health and preventive medicine specialists and epidemiologists have more recently become attuned to the problems of homicide and violence and to the possible contributions that can be made toward their resolution (10, 22, 23). It has been noted that a first step in this process should be the application of basic epidemiologic techniques to these cases of morbidity and mortality (10, 22). We agree that epidemiologic techniques can assist in the production of sound data for the direction of causal and prevention models. We furthermore suggest that primary homicides, i.e., those not occurring during the perpetration of another crime, are particularly relevant to public health planning, and we have thus examined them epidemiologically.

Characteristics of primary homicides in the United States were quite stable between 1976 and 1979. Four findings are worthy of emphasis. First, primary homicides were overwhelmingly intraracial and involved male victims and/or offenders. White females are at relatively low risk compared with all other groups. Second, the relationships between victims and offenders varied with their race and sex. For females compared with males and whites compared with blacks, a greater proportion of homicides involved family members and a smaller proportion involved acquaintances. Third, peak incidence for victims and offenders was in the most work-productive years of life. Fourth, firearms were the predominant weapon used in primary homicides; however, patterns of weapon usage varied strikingly with the races and sexes of victims and offenders.

Many suggestions for further research can be made on the basis of these data. The most obvious questions include the following: First, to what extent do racial variations described here actually represent socioeconomic differences between those races? Racial differences in socioeconomic status are striking, and ecologic

correlations suggest that poverty may be a more significant factor than race in regard to violence (12, 22, 24). This issue cannot be addressed using this data set, but it is an important one (6, 12, 25). Second, why do the patterns of weapon usage vary with race and sex? Some explanations come readily to mind. These variations might reflect differences in weapon possession, location of the assault incident, immediate availability of weapon, lethality of intent, skill with a given weapon, strength differences between victim and offender, or cultural predisposition to certain forms of assault. These possibilities can be only superficially explored with our data. For instance, homicides of male victims by female offenders took place with guns more frequently than those of female victims by female offenders. This may have been because an assault upon a male with this weapon was more likely to succeed than one with another weapon, given the strength differential between victim and offender. If so, one might expect a smaller difference between firearm usage in non-fatal assaults by females of males than by females of females. Strength differential might also explain a male's more frequent use of firearms and knives with a male than with a female victim. The proportionately high use of knives by black females is less simple to explain on the basis of strength differential between victim and offender. Black females could possess fewer firearms than other groups or could be involved in more home occurrences, where knives may be readily available. This difference could also have some cultural basis (26). A third question raised by our findings concerns the racial and sexual patterns seen in the relationships between victims and offenders. These may reflect different types of family and extended family structures (26, 27) as well as differing perceptions of acceptable limits to intrafamilial and acquaintance interactions and violence

(16–20, 27, 28). Both these possibilities merit further investigation.

Prevention of primary homicide requires a variety of measures. The first broad area in need of prevention is intrafamilial violence. Law enforcement agencies are increasingly aware of a need for trained "domestic quarrel teams" and "family crisis intervention units" (29). Secondary prevention also includes crisis centers and shelters for battered wives. These techniques might be better directed if the precipitating events for intrafamilial homicide were better defined in national law enforcement data. Primary prevention techniques might include parenting education on child discipline and development, school health education on family interactions, stress reduction through neighborhood support systems, and family counseling or therapy. The role of the television medium in these techniques has yet to be fully explored, especially in light of the recent advent of cable systems. The FBI-UCR data suggest that while males are a key target population for all types of primary homicide, females, rural households, and the very young or very old would especially profit from programs to decrease intrafamilial violence.

The second broad area in need of preventive measures is one that public health has not yet addressed, i.e., non-crime-associated violence between acquaintances or strangers. Measures might include school- and employment-located education on 1) how to diffuse aggressive or stressful situations effectively and avoid physical conflict, and 2) what situations are associated with heightened risk, e.g., arguments with acquaintances over money or property or altercations with strangers. They might also include legislation and education to prevent weapon, alcohol, and drug misuse. Males are a key target population for this broad area of prevention.

Finally, although it may appear trite or

insurmountable, prevention measures must include the alteration of male/male interaction patterns in this country. Aggression and violence appear to be an ingrained element of the behavior of males in our society. Unless this is changed, primary violence and homicide can be expected to continue at a high level.

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