New Directions in Homicide Research

Proceedings of the 2001 Annual Meeting
Of the Homicide Research Working Group

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Editors

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FOREWORD

Official reported national statistics from 2001 show crime rates to have risen in almost every category. Such increases come on the heels of marked declines in the late 20th Century and suggest that future crime rates may rise even higher. Additionally, these figures spark continuing debate among public officials, academics, and criminal justice practitioners as to the source of these increases in crime and violence. One organization that studies the composition of, changes in, and nature of homicides and violent crimes is the Homicide Research Working Group (HRWG).

Dedicated to examining the causes, correlates, and promise for preventing both homicide and other violent behavior, the HRWG has met annually for nearly a decade and currently has approximately 250 members worldwide that share in its goals. The Federal Bureau of Investigation, also sharing in the desire to prevent crime and violence, has participated in each of the HRWG meetings since its inception and hosted this annual event both in 1993 and again in 1999. Furthermore, many HRWG members have either participated in research or provided advice to those in the law enforcement community relative to the latest research findings that might assist in protecting and serving the public.

During 2001, the HRWG convened its annual meeting on the campus of the University of Central Florida in Orlando, Florida and the efforts and discussions of all in attendance were compiled into a volume of proceedings as published here. These proceedings are not only useful for documenting the advances in the study of homicide and violence but also to provide an opportunity for law enforcement, criminal justice practitioners, the medical community, and others who use such publications to inform both current practice and future research.

This publication serves to further share the scholarship and ideas of those devoted to studying homicide and other types of violence in hopes of contributing to the prevention of these incidents. It is through such efforts that a body of knowledge will continue to emerge that may inform new and existing enforcement and deterrence initiatives. Furthermore, this volume, while highlighting the recent work of the HRWG, also underscores the continued commitment by researchers, government, the private sector, and practitioners to determining strategies for reducing crime and violence both in the United States and around the world. As such, the information contained herein, as in past HRWG proceedings volumes, will continue to guide law enforcement agencies as well as individuals and organizations in addressing the challenges of homicide and violence now and in the future.

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PREFACE

Until 1999, the *Proceedings* of the Homicide Research Working Group (HRWG) meetings, variously called workshops and symposia, were published by the National Institute of Justice (NIJ) of the Department of Justice, which essentially sponsored the HRWG in its formative years. With the growth of the organization, to the point where Sage Publications publish *Homicide Studies: An Interdisciplinary & International Journal*, it no longer seemed appropriate for the NIJ to continue to publish material not based on NIJ sponsorship. Fortunately, for the 1999 *Proceedings*, the FBI Academy decided to expand its role as host to assume the role of publisher for the *Proceedings*. After that, however, it looked as if the HRWG would be on its own, obliged to undergo the expense of self-publishing the *Proceedings*, which include copies of papers delivered orally at the annual meeting, summaries of the discussions related to those presentations and of the posters presented at the poster sessions, and generally summaries of events without papers (such as the opening symposium and tours). The FBI, however, has continued its role as publisher of our *Proceedings*, first for the 2000 meetings and now for those from 2001. On behalf of the HRWG, we express our gratitude for that much-appreciated contribution.

The 10th annual workshop of the HRWG was sponsored by the University of Central Florida in Orlando, academic home to several HRWG members, including two co-founders of the organization, Lin Huff-Corzine and Jay Corzine, currently, respectively, HRWG's President and co-editor of its journal, *Homicide Studies*, as well as Jana Jasinski, currently the HRWG Network Coordinator. As has become a practice among sponsors, in addition to hosting the meetings, some attempt is made to demonstrate something special to the host city or its institution. In this case, our field trip included a demonstration by a forensic anthropologist in the dried swampland surrounding the university.

It should be noted that there have been some substantive changes in content between the meetings and the publication of their *Proceedings*. Some of the authors of the various papers took advantage of the time between oral presentation and the deadlines for submission of the written versions to update and revise their papers. Some of the titles differ between these proceedings and the more tentative titles listed in the Agenda for the meeting (first appendix), and authorship has sometimes been expanded. Discussions for each panel are based on the notes taken by the various recorders during the sessions, but have been modified for uniformity. As there were no standard rules for how notes were to be recorded, there is a considerable variation as to what was deemed worthy of recording. Moreover, because there are two intermediate steps between participants' oral commentary during the discussions and our written summary of what was spoken, nothing reported here should be treated as a precise quotation, although we hope the gist of each statement is reasonably accurate. One additional problem for the 2001 *Proceedings* is that some symposium events were not recorded at all. In addition to the papers delivered, and discussions regarding them, there are also summaries of the various presentations at the poster sessions, obviously losing some of the immediacy and detail possible with posters and their wealth of charts, brochures, and the like.

While the editors should like to take responsibility for some of the failings in these Proceedings--including some inconsistency in graphics, and particularly in the long delay between the workshop and the publication of the *Proceedings*--we feel compelled to place some blame on computers, computerization, two competing word-processing routines, and the Internet. Fortunately, most of the problems were solved, and formatting made consistent, by the able work of Victoria Gojmerac at the University of South Florida, without whom these *Proceedings* would have taken far longer to reach the publishers at the FBI. And, finally, we wish to thank all of the participants, who, through their research and dedication, continue to further our worthy mission, which aims to understand the sources of lethal violence and, ultimately, how it might be reduced.

M. Dwayne Smith
Paul H. Blackman

February, 2003

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OPENING SESSION

DOMESTIC VIOLENCE FATALITY REVIEW TEAMS: ONE TEAM'S EXPERIENCE

OPENING SESSION

DOMESTIC VIOLENCE FATALITY REVIEW TEAMS: ONE TEAM'S EXPERIENCE

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In January 2000, Orange County, Florida, joined with five other counties to participate in a fatality review summit as part of the initial procedures for establishing a domestic violence fatality review team. These six new teams joined the four original teams for a total of 10 teams across the state. Each team was charged with reviewing domestic violence homicides in its county with the ultimate goal of reducing the occurrence of these homicides. In the year and a half following the summit, the Orange county team developed protocols and procedures for fatality reviews and dealt with a number of issues related to the functioning of the team. This paper discusses some of the issues that the team faced in the first 18 months of its existence.

One of the first issues we encountered was that of team membership. Our original members included representatives from the city commissioner, domestic violence shelters, batterer treatment facilities, the county sheriff's department, the University, the county domestic violence task force, both the state and county department of corrections, and the city police department. As our team met and discussed how we would move forward with our review process, our membership changed slightly to include representatives from legal services, the state attorney's office, the county health department, the medical examiner's office, and private attorneys.

In addition to membership, one of the more important issues we faced was that of confidentiality. Florida is a public information state, and the existence of the Sunshine Law (§286.11) meant that our minutes would be open to public inspection. This would make our reviews somewhat difficult as any facts we uncovered in the course of our review could be publicized and might make agency cooperation tenuous because of fear of negative publicity. Not long after the six new teams were established, however, the state of Florida enacted new legislation (§741.3165) that protected the material used in the fatality reviews. Currently, any reports produced by fatality review teams that contain confidential information will remain confidential and any confidential information obtained by or provided to a fatality review team shall remain confidential.

The new legislation gave us confidence in our reviews, however, as the limits of this new law had not been tested, we opted to protect ourselves even further. This was accomplished primarily through our case selection process. To ensure that our reviews would be both beneficial and would not test the boundaries of the new confidentiality laws, we chose to review closed cases--that is those cases in which the criminal and civil proceedings had been completed. Initially, we were able to select cases in which there was both a homicide and a suicide, thus the case was closed relatively quickly and would be available for review. In addition to selecting closed cases, we also chose to restrict our review to information obtained from public records. In this way, we were not testing the strength of the protective legislation. Our data came from a variety of sources including newspaper accounts, police records, autopsy reports, and corrections information. Finally, as an additional layer of protection, each member of the team and their supervisor signed a confidentiality form stating that they would keep the discussions of the team confidential.

As Florida now has a number of fatality review teams in place across the state, it is interested in compiling the information gathered by these teams to be able to assess domestic violence fatalities statewide. To do this, the Florida Department of Law Enforcement developed data recording forms to be used by each team and compiled into a yearly report on the work of the teams as a group. This has not been without complications. One of the first problems had to do with the program in which the original forms were created. The program did not allow a completed form to be printed out, and used multiple screens for the complete data form, a problem which proved to be nearly impossible to overcome. After hearing from the teams regarding the difficulties with the computer form, however, a new form was quickly created. The new form was only available in a hard copy form, and not in an editable computer file, which meant that photocopies were the only way to create new forms. However, the new forms included more options for information from each team. One problem we still deal with though is that although the domestic violence statute in the state of Florida includes both intimate partners and other familial relationships, the forms were designed for intimate partner relationships. Our team opted to follow the state statute and therefore some of the homicides that we reviewed were not intimate partner homicides. This made the use of the form difficult. We have since received several revised versions of the forms, however, the issue regarding intimate partner versus other types of domestic homicides remains.

At the time of this conference, we had reviewed four cases including three homicide/suicides and one homicide. All but one of the cases was an intimate partner homicide. Although we had initially spent a lot of time working out strategies for reviewing cases and dealing with issues related to confidentiality, we were not completely satisfied with our progress. As a result, we altered our original strategy of consecutive reviews to working on multiple cases at once. In this way, we would be better able to see patterns and could use the results from our reviews to affect policy changes both locally and statewide.

CHAPTER ONE

HOMICIDE WEAPON RESEARCH

A PRIMER FOR HOMICIDE RESEARCHERS ON TRENDS IN FIREARMS AND THEIR AVAILABILITY

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ABSTRACT

Criminological and media discussions on the relationship between guns and crime tend to focus on the single factor of guns and their availability. But that single factor is rarely actually measured. The rhetoric of the gun debate as portrayed in the news media has influenced assumptions homicide researchers have made regarding the nature and potential deadliness of different firearms over time, and trends in gun availability over time, while violent crime rates themselves have fluctuated. This paper looks at changes in American gun development and distribution—caliber, action type, ammunition capacity, and design—and how they affect the potential deadliness of such guns when misused. The paper then analyzes trends in firearms availability, and the problems of measuring firearms availability in the United States.

INTRODUCTION

Among the more popular views regarding firearms in America—in the media and accepted by some homicide researchers—are that firearms have become "deadlier" in recent decades, that their availability has increased along with increases in homicide rates in the late 1980s and early 1990s, and that the 1990s' decline in the homicide rate among adolescents and young adults can be explained in part by a decline in firearm availability. A good example of this is Alfred Blumstein's analysis of youth gun violence, where he not only presumes increasing numbers of guns from increasing involvement of guns in youth homicides, but assumes the lack of restraint is especially telling with "rapid-fire assault weapons" (Blumstein, 1995, p. 24), although such firearms never accounted for more than a tiny percentage of guns misused in crime, on the order of 0-3% depending upon the jurisdiction (Kopel, 1999; Kleck, 1997, pp. 112-117).

Similarly, while priding herself on documenting all the rest of her research, Kathleen Heide saw nothing wrong with simply asserting: "*Changes in the absolute number of guns in society, the availability of guns to juveniles, the increased firepower of today's firearms, and the attitudes towards the appropriate use of guns* are factors that affect children and adolescents in our culture. . . .The proliferation of guns in American society and the advent of firearms with increased firepower has been accompanied with a change in attitudes towards firearms [emphasis

in original]" (Heide, 1999, pp. 122-123).[1] And a psychologist at Temple University, Laurence Steinberg, was quoted as saying, "In earlier generations, the same sets of problems leading youths to commit these atrocious killings would lead to fist or knife fights. Now they have access to handguns and automatic weapons so the crimes they commit have escalated out of control" (Wood, 2001). Similarly, public-health professionals have written of "the increased availability and lethality of firearms" (Tardiff et al., 1994, p. 43).

These views seem to reflect the rhetoric of anti-gun activists publicized in the news media, rhetoric that is not always clear or consistent. The Violence Policy Center, for example, has suggested that handgun deadliness, and appeal to criminals, is associated with concealability, capacity, and caliber (Stone, 2001; Diaz, 1999). And an attorney for the Center to Prevent Handgun Violence (now the Brady Center to Prevent Gun Violence) asserted, regarding Navegar's TEC-DC9, that there was "no gun of higher firepower that could be hidden in a briefcase" (Quinn, 2001). The TEC-DC9 is a fairly large and cumbersome 9mm. Semi-automatic pistol, then sold with a large magazine, but which, when fired, had a tendency to jam within a few shots, so that actually discharging 20 rounds would take longer than doing so with a larger-caliber, more concealable revolver, or than numerous 9mm. (or larger) semi-automatic pistols.

The first view, that firearms have become "deadlier," with "increased firepower"—whatever those words might mean—is simply false. The second view, that gun availability increased and then decreased, is more difficult to assess. One problem is that measuring availability has always been problematic—including distinctions between individual and household ownership and the willingness honestly to discuss guns with strangers—and may have become more so because of respondents' perceptions about the social acceptability of acknowledging firearms ownership. While Heide notes a change in the attitudes toward firearms, meaning a greater willingness to use them improperly, it might also be that a change in the perceived attitude toward firearms leads gun owners to be less willing honestly to discuss their possessions with survey researchers. But most assertions on trends in gun availability are not based on any effort to measure firearms availability. Instead, assessments have been based upon apparently circular reasoning, where increasing gun misuse leads to an inference there is increasing gun availability, which in turn explains the increase in gun misuse. This approach began with early public-health forays into the world of firearms investigation (Rushforth, Hirsch, Ford, & Adelson, 1975), who at least tried and failed to measure gun trends in the jurisdiction studied, and has continued even among the most highly regarded of criminologists (Blumstein, 1995).

[1]Heide also observed, "I can honestly say that when I was growing up the thought that I would be shot and killed when I was out to recess or responded to a fire alarm in my school building never even entered my mind--not even for a split second" (Heide, 1999, p. 116). The author can say the same thing just as honestly despite seeing dozens of guns displayed in the homes of his classmates. Colleagues would note that, when the author and Heide were growing up, teenagers, in addition to owning and using guns for hunting, brought guns to school for competitive shooting. Others have noted that youth gang members in the past often owned and carried, and even threatened with, guns, but rarely fired them (Kopel, 2000, p. 80).

TECHNOLOGICAL DEVELOPMENTS AND THE "DEADLINESS" OF FIREARMS

Handguns

Technologically, the major changes in the effectiveness of firearms, particularly handguns, occurred not in the 1970s, '80s, or 90s, but in the 1930s and 1950s. The first change was the development of the .357 Magnum revolver, significantly more powerful than the old .38 caliber revolvers, despite identical bullet diameters. Muzzle energy and "relative stopping power" both roughly doubled.[2] In the 1950s, stopping power was further enhanced with the development of the .44 Magnum revolver, famously described in "Dirty Harry" as "the most powerful handgun in the world" (Bravin & Calian, 2001), with a similar increase in the amount of muzzle energy compared to the .357 Mag.[3] There was no similar increase in "stopping power" or "deadliness" with the increasing popularity of the 9mm. Pistol during the 1980s and 1990s. While slightly more effective than the .38 cal. Revolver, it is much less powerful than Magnum revolvers and the .45 ACP pistol used by the American military for most of the 20th century. Law enforcement preference for the 9mm. Was recognized as "going to the smaller, lighter bullet" to answer the question as to whether stopping criminals might be "best done with a more powerful gun with fewer available shots or a somewhat less powerful one that can fire more often?"(Clapp, 1987, p. 36). Police experience indicates that the greater number of potential shots leads to more shots fired with a lower percentage of hits (Marshall & Sanow, 1996, p. 77).

Criminal misuse of the 9mm. Pistol is what has led to assertions about the increasing firepower and deadliness of guns used in crime. But even tracing data would only suggest an increasing popularity for guns up to 9mm.; criminals tend to use small- and medium-bore handguns (BATF, 1999; Kennedy, Piehl, & Braga, 1996a and 1996b). Police departments, which often use the 9mm. Pistol, are increasingly turning to newer, larger caliber handguns, including The .40 S&W cal. And .357 SIG, with a few using 10mm. And the venerable .45 (Wiley, 2001,

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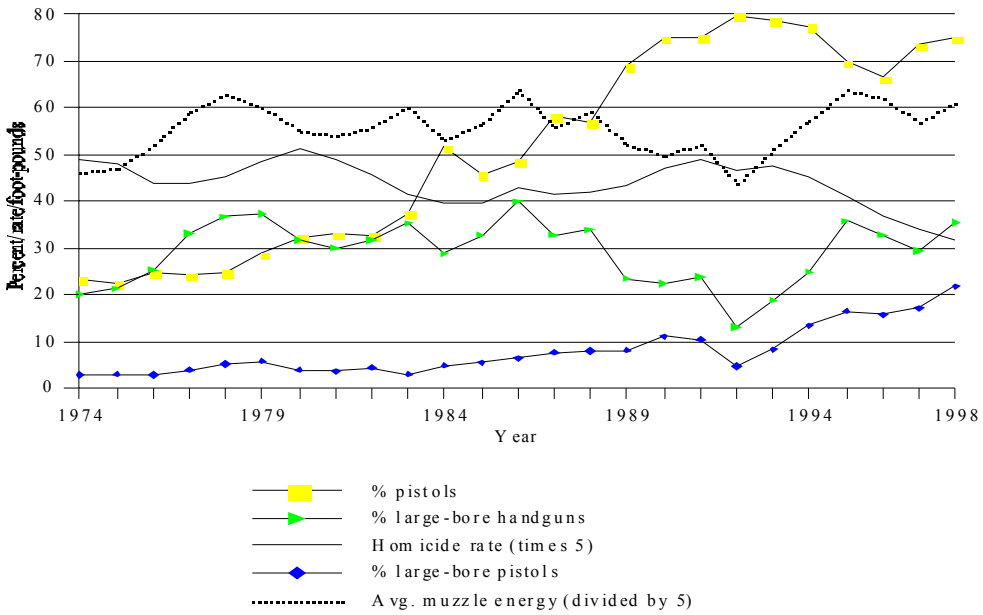
[2]"Stopping power" is actually what law enforcement officers would be looking for in a sidearm, not "deadliness." The goal is to stop an aggressor, not necessarily to kill him. A deadly shot, even to a vital organ, might not stop immediate aggression even if it would ultimately kill; it is the stopping that is desired. Measuring "stopping power" is rather controversial, with some measures based on a variety of formulæ and others based on reported real-world experiences (Marshall & Sanow, 1996 and 2001). One formula, used by Wintemute (1996), produced "relative stopping power" where a 9mm. is over ten times as powerful as a .22, with the .50 AE [Action Express] over six times as powerful as the 9mm., but it is unclear exactly what that is supposed to mean in real-life situations. Should one feel more confident of stopping a criminal by shooting him once with a .50 AE than 75 times with a .22? Should a firepower-seeking criminal choose a six-shot Ruger .480 revolver over a 9mm. Uzi pistol with a 20-round magazine?

[3]The .44 Mag. is no longer the most powerful handgun, but those that are more powerful are almost never misused in crime, such as Thompson Center's single-shot pistols in rifle calibers, the .454 Casull revolver, the .50 cal. Desert Eagle pistol, and the new Ruger .480 revolver. The .480, for example, has nearly 1300 foot-pounds of muzzle energy compared to perhaps 1000 for the .44 Mag. (NRA, 1989, p. 262; Mayer, 2001).

p. 56), larger rounds for which medium-capacity magazines (11-19 rounds), or larger, are less practical. And it has been suggested that civilians might similarly turn more to that since it is has more stopping power per round than the 9mm. And, so long as new medium- and large-capacity magazines are banned, it is better to have a magazine with 10 larger rounds than 10 9mm. Rounds (Wintemute, 1996). Combining the appeal of smaller handguns because of the greater number of states allowing most law-abiding citizens readily to qualify for concealed-carry permits, with the appeal of larger-caliber handguns to overcome with stopping power the federally-mandated diminished magazine, what anti-gun activists refer to as "pocket rockets" are apt by pro-gun activists to be called "Clinton Compacts" (Cox & Cox, 2001). It is too soon for there to be evidence of whether criminals are making increasing use of the larger caliber guns, but overall homicide rates, and gun-related homicide rates, since the two factors encouraging a change—the 1994 crime bill and the trend of states to allow concealed carrying of handguns—were falling. Milwaukee County has recorded a gradual decrease in the use of small-caliber handguns in homicides during the 1990s, and an increase in the misuse of handguns of caliber .40 and above, but with a decline in overall homicides (FBI, 1992-2000; Firearm Injury Center, 2001). At any rate, the 9mm., while clearly increasing in popularity from 1974 to 1998, is less powerful than the handguns generally displaced.

FIGURE 1. Homicide Rates and New-Handgun Trends, 1974-1998[4]



[4]Homicide rates from FBI, 1980 and 2000. Manufacturing trends indicate the percentage of new handguns that are pistols (mostly semi-automatic, vs. revolvers), large bore (.357 magnum and more powerful; excluding 9mm., .38, and below), and large-bore pistol (.40 and above). Sources: Thurman, 1995 and 2000.

Data on the sorts of handguns manufactured during the quarter-century 1974-1998 reveal no particular relationship between the type, size, or power, of new pistols and homicide rate fluctuations (see Figure 1).[5] It should be noted, however, that there are a number of problems in attempting to measure trends in the "deadliness" of handguns using manufacturing data. For one thing, those data ignore details (that are lacking) on trends in imported firearms. For another, the "stopping power" (however measured), muzzle energy, and the like, are dependent not simply on a gun's caliber, but on its barrel length. In addition, "stopping power" is dependent upon the velocity and design of the ammunition projectile (Marshall & Sanow, 1996). During the past decade, there have been trends making some ammunition more effective—although information is lacking on how widespread the availability of that ammunition became during the 1990s.

And some might argue that "deadliness" is also affected by how many rounds can be fired from a particular handgun. The magazine capacity for 9mm. Pistols is generally larger than the cylinder capacity of a more powerful revolver—although law enforcement experience sometimes indicates more shots fired but with a lower percentage of hits (Marshall & Sanow, 1996, p. 77). The possibility for more shots was certainly one of the points Beretta U.S.A. (1993) made to convince law enforcement to switch from their traditional revolvers to Beretta's line of semi-automatic pistols—that firing capacity was 15 in the magazine plus one in the chamber, compared to six rounds in a traditional revolver. In addition, Beretta noted that reloading took the average officer only 2.4 seconds with a pistol but five seconds with a revolver. On the other hand, 100 years ago, the Mauser pistol was advertised as being able to fire five rounds in one second, with only "a couple of seconds" required for reloading the ten-round magazine ("Second Shots," 2001), so the change over the decades has not been great. But the NRA's National Firearms Museum displays an *American Rifleman* magazine cover, showing a card with five bullet holes—that can be covered by a circle the size of a half-dollar—fired from a revolver in 0.45 seconds at a distance of 20 feet, by Ed McGivern at the age of 58—a feat not dissimilar from others he demonstrated ("Fast and fancy," 1974). During political debates over large-capacity semi-automatics, a video was made of a more ordinary mortal than McGivern firing 12 rounds

[5]The muzzle energy data used in Figure 1 and Table 1 are all perforce based on approximations for a number of reasons. While there are data on new handgun manufacture by caliber, details on the caliber of imported handguns are missing, although the factoring criteria for imports would suggest that imported handguns are, on average, slightly larger than domestically manufactured new handguns. Manufacturing data also do not give information on barrel length, which influences muzzle energy. To the extent the new trend from the 1990s on is to so-called "pocket rockets," their slightly shorter barrels would mean slightly less stopping power than handguns of the same caliber with a longer barrel. Muzzle energy is also influenced by the particular round of ammunition used, with the amount of powder, and the material, weight, and shape of the bullet varying (Marshall & Sanow, 1996). In addition, manufacturing data, particularly for .40 caliber and above, are rather vague, with the data including all handguns between .40 and .50 caliber (including the .40, .41 and .41 Mag., 10mm., .44 and .44 Mag., .45 and .45 ACP, .454 Casull, .480, and .50 AE). Muzzle energy varies considerably for those calibers and the precise proportions of new guns in each are unknown. The best that could be done was to come up with a reasonable estimate of an average muzzle energy, assisted by advice from the technical staff of the National Rifle Association (NRA).

from a revolver in less than eight seconds, including the time needed to reload—from a speed-loading clip—about the same time as ordinary shooters can fire a semi-automatic with any effort to aim.

On the other hand, there is reason not to believe that significant. Etten and Petee (1995) have shown that most mass shootings either involved no more shots than could be accomplished with a revolver, or shots fired over a long enough period of time so that reloading, often repetitive reloading, was not an issue. And New York Police Department studies of shootouts between criminals and law-enforcement officers generally show only about three rounds fired per criminal. Most examples where dozens of rounds are fired involve several officers firing large numbers of errant shots (Goehl, 1990-1993).

In terms of potential deadliness when misused, there is no real comparison between rifles or, at short range, shotguns, and handguns. Shotguns can disperse up to dozens of shot each nearly the size of a bullet. Rifles send bullets with considerably more energy, at the muzzle and beyond. For example, a .22 Magnum bullet that leaves a handgun with a six-inch barrel with muzzle energy of 181 foot-pounds, leaves a rifle with 324 foot-pounds of energy. A 240-grain .44 Magnum round leaves a handgun with 6.5-inch barrel with 970 foot-pounds of energy. It leaves a rifle with 1650 foot-pounds of energy. The .44 Mag. Is a handgun round for which some rifles are chambered. Standard rifle rounds leave the muzzle with even more energy.

The dramatic difference in muzzle energy explains one of the problems faced when Congress was considering how to respond to media editorials regarding the so-called "cop-killer" bullet, with politicians noting that deer do not wear soft body armor. The standard body armor, in a Type IIA Kevlar vest—an exemplar for measuring penetrability in performance-based definitions of "cop-killer" bullets—is designed to protect a police officer from a .357 Magnum handgun round, most of which leave the barrel with less than 600 foot-pounds of energy. That same round, fired from a rifle, may leave the barrel with 1150 foot-pounds of energy. More importantly in terms of legislative considerations, handguns have been chambered for many of the most popular rifle rounds, and the proposed legislative definitions generally applied to handgun ammunition defined as a round for which a handgun was chambered.[6] While shortening a barrel to handgun length will reduce the energy of a round more commonly fired from a rifle, hunting rounds with 1800-3000 foot-pounds of energy when fired from a rifle will easily penetrate a Kevlar vest when fired from a long-barreled single-shot handgun in the same caliber. Deer may not wear Kevlar vests, but ammunition used in deer hunting would almost all be banned by a performance-based definition of "armor-piercing" handgun ammunition.

[6]The federal legal definition of "armor piercing ammunition" applies to a projectile "which may be used in a handgun." 18 U.S.C. 921(a)(17)(B)(I). When a manufacturer produced a prototype handgun which would be the first to take the AK-47's 7.62 x 39mm. round, BATF thenceforth added some 7.62 x 39mm. rounds to its list of "armor piercing ammunition" rounds. All such rounds would have been banned had the legal definition been based on performance rather than the material which formed the core of the bullet, even though no handgun but a prototype would take the round in question.

Long Guns

Fewer statistical data are available on trends in rifle and shotgun production. Published annual information is generally limited to the total numbers of new rifles and shotguns manufactured, exported, and imported, with very little other information. Domestic-manufacturing data may include the numbers of guns produced by each manufacturer, but with no information regarding action-type, caliber, etc. Importation data identify country of origin and segregate rimfire (.22 cal.) rifles from centerfire rifles, with limited information on centerfire action type (semi-auto, bolt, other), with similar action-type information on shotguns (semi-auto, over/under, combination, other). And export data give the name of the manufacturer, as well as separating pistols from revolvers, but giving only shotgun and rifle manufacturer and numbers. But there are no import or export data on caliber, and nothing which could provide more than the barest hint of what might be deemed an "assault-type" firearm (based on action-type and American manufacturer or foreign country of origin)(Thurman, 1994, 2000). There is, therefore, no way statistically to evaluate the sorts of long guns becoming available each year, only their number.

And those numbers have been generally downward over the past quarter century. During the late 1970s, there were roughly 1.5 million new shotguns available in America (manufactures minus exports plus imports), falling to the neighborhood of one million per year throughout the 1980s and 1990s. Rifle production stayed closer to two million per year during the 1970s, falling to about 1.7-million in the early 1980s, to roughly 1.2 million annually in the late 1980s, before dipping to just over one million in 1992, and then rising back to about 1.5 million by 1998. As shown in Table 1, the per capita increase in guns (handguns and long guns) went below 2.0% in 1982, has remained there, hovering closer to the 1% level, most years since, surpassing 2.0 only once (2.03% in 1994), and has been consistently less than the per capita increase in the number of handguns from 1976 on.

It would be difficult to measure real trends in potential deadliness, particularly of long guns, without substantially more detailed information about the guns manufactured. Relatively little is known about guns imported, whether long guns or handguns. And even the available manufacturing data give information about changes in the types of handguns manufactured rather than on the handguns already owned. But those new-gun data should at least provide information on whether trends are to potentially deadlier or less deadly handguns. And somewhat more would be available if BATF were willing to give more details of information it already receives. Those who might wish to fill voids in the data by contacting manufacturers will find the gun manufacturing industry to be fairly secretive. Some data may come in the discovery phase of municipal lawsuits against firearms manufacturers should they go forward, but it is not clear that the various lawsuits are actually aimed at supplying information useful to homicide researchers. The dearth of data with regard to long guns mean less to homicide researchers than might similar paucity with regard to handguns since most firearm-related crimes involve handguns, not rifles or shotguns.

The increasing popularity of military-style semi-automatic rifles is similar to the increasing popularity of 9mm. Pistols. The rifles are actually less powerful than the arms they replaced. While the news media pretended that so-called "assault weapons" were especially

powerful, those guns are, in fact, particularly weak. The original assault rifle, *Sturmgewehr*, was developed by the Nazis so their soldiers could more easily carry the gun along with more rounds of smaller ammunition. Other aspects of its later design had the same practical goal, including straight-stock configuration, leading to the pistol-style grip (often with a protruding magazine) for better aim, etc. The assault rifle was a "selective-fire rifle chambered for a cartridge of *intermediate* power [emphasis added]" (NRA, 1989, pp. 290-291). For example, the full-size Russian military rifle comes in 7.62 x 54mm. With 2650 foot-pounds of muzzle energy; the assault-rifle version comes in 7.62 x 39mm. With 1495 foot-pounds of muzzle energy; the Russian military pistol, 7.62 x 25mm., has muzzle energy of about 290 foot-pounds (NRA, 1989, p. 266; Barnes, 1993, p. 221). Popular hunting rounds will commonly leave the barrel with 1800-3000 or more foot-pounds of energy, with Magnum rifle rounds more commonly in the 4000-5000 range (NRA, 1989, pp. 261-267), with a Barrett 99 in .50 BMG having muzzle energy of 11,153 foot-pounds ("Barrett Model 99," 2001).[7] In terms of actual damage done—as opposed merely to measuring velocity or kinetic energy—the nation's leading authority on wound ballistics, Martin Fackler, concluded that "The assault rifle fires a bullet that is intermediate in power between the bullets of regular infantry rifles and handguns" (Fackler, Malinowski, Hoxie, & Jason, 1990). Fackler, et al. (1990) explained that one reason such a small percentage (15%) of children shot in the Stockton school yard died was that the shooter was using assault-rifle caliber ammunition; some national data suggest that assaultive gunshot wounds may be fatal 23% of the time (Annest, Mercy, Gibson, & Ryan, 1995).

Table 1 displays a quarter-century of trends in the homicide rate and various aspects of the new gun market. Since there is some attribution of "deadliness" to the shift from revolvers to semi-automatics, column B indicates the percentage of newly manufactured domestic handguns that are pistols. Pistols include any handgun other than revolver (such as derringers or single-shot handguns), but almost all pistols are semi-automatics. Column C indicates the percentage of such handguns that are large-bore pistols or revolvers, defined as .357 Mag. And above. Column D reports the percentage of newly manufactured domestic handguns that are large-bore pistols, using the same definition, which basically means .40 cal./10 mm. And above, both achieving some popularity in recent years, but also including the long-popular .45 cal. Automatics of the Colt 1911, and such huge variants as the .50 AE Desert Eagle. Column E reports on trends in the popularity of the much-maligned and much-sought-after 9mm. Semi-automatic pistol. Column F includes those, the smaller 9mm. Variant, the .380 cal. (or 9mm. *Kurz*) pistol, and the .38 cal. Revolver. The popularity of small-bore pistols and revolvers are included in Column G, defined as .22 through .32, and including both revolvers and pistols. And Column J provides an estimate of the average muzzle energy, in foot-pounds, of newly manufactured domestic handguns, a more general measure of alleged "deadliness" of new handguns, since it takes into account all of the preceding percentages. Finally, more as a measure of availability than alleged deadliness,

[7]According to the Violence Policy Center, criminals choose guns based on the "three deadly Cs": concealability, capacity, and caliber (Stone, 2001). The Barrett fails dismally on two of those counts. It holds one round of ammunition, with an overall length of 50 inches, and a weight of 25 pounds (compared to about three pounds for a fairly heavy handgun)("Barrett Model 99," 2001). The Violence Policy Center believes the Barrett rifle should be banned because of its appeal to criminals (Violence Policy Center, 1999).

Columns H and I look at the total numbers of new handguns and firearms manufactured or imported each year to see how, on a per capita basis, it would increase to total stock of guns owned by Americans.

TABLE 1. Homicide Rate and Various Gun Trends, 1974-1998

Year	A	B	C	D	E	F	G	H	I	J
1974	9.8	23.2	20.0	2.9	2.8	31.6	48.4	5.12	2.74	229.1
1975	9.6	22.5	21.2	3.0	2.0	29.6	49.1	4.27	4.80	234.7
1976	8.8	24.8	25.4	2.8	3.6	33.2	41.4	4.15	3.26	259.9
1977	8.8	24.1	33.0	3.9	3.8	33.0	34.0	3.64	2.68	293.6
1978	9.0	24.7	36.7	5.2	3.4	29.9	33.3	3.45	2.71	315.3
1979	9.7	28.7	37.3	5.8	3.0	22.1	40.6	1.81	0.74	301.8
1980	10.2	32.3	31.8	3.9	3.0	18.8	49.5	3.79	2.36	274.0
1981	9.8	32.9	30.0	3.6	3.0	22.7	47.4	4.26	2.33	270.7
1982	9.1	32.5	31.7	4.4	3.3	27.2	41.1	3.54	1.88	281.4
1983	8.3	37.3	35.3	3.0	3.3	24.7	40.0	2.44	1.34	301.2
1984	7.9	51.5	28.7	4.8	3.7	22.3	49.0	2.34	1.54	263.7
1985	7.9	45.6	32.8	5.4	3.6	21.7	45.6	1.90	1.23	286.1
1986	8.6	48.5	39.9	6.4	4.5	20.2	39.8	1.49	0.91	318.4
1987	8.3	58.1	32.8	7.7	6.5	22.0	45.2	1.99	1.33	282.4
1988	8.4	56.8	33.9	7.9	10.5	23.4	42.7	2.47	1.48	294.6
1989	8.7	69.0	23.5	8.1	20.1	34.5	42.0	2.48	1.59	258.7
1990	9.4	74.8	22.5	11.1	19.0	35.4	42.1	1.93	1.02	251.5
1991	9.8	75.0	23.8	10.5	19.6	37.8	38.2	1.55	0.71	262.2
1992	9.3	79.7	13.2	4.7	15.0	44.7	42.1	2.61	1.31	218.6
1993	9.5	78.8	18.8	8.2	22.1	46.7	34.5	3.63	1.87	254.0
1994	9.0	77.3	24.9	13.4	29.1	46.9	28.2	3.60	2.03	287.5
1995	8.2	69.7	35.7	16.5	23.1	39.1	25.2	1.78	1.25	320.8
1996	7.4	66.4	32.8	15.7	21.5	40.5	26.7	1.42	0.98	312.0
1997	6.8	73.4	29.3	17.1	21.6	38.6	32.1	1.22	0.81	285.0
1998	6.3	74.8	35.5	21.8	22.1	35.8	28.7	1.00	0.81	305.5

A=homicide rate/100,000; Percentage of new handguns which are: B=pistols, C=large bore, D=large-bore pistol, E=9mm pistol, F=medium bore, G=small bore; Percent per capita increase in stock of: H= handguns and I=guns; J=average muzzle energy (in ft.-lbs.) of new handguns. (Sources: FBI 1980 and 2000; Thurman, 1995 and 2000; Kleck, 1997 and personal communication; NRA, 1989 and technical division.)

The firearms in general, and handguns in particular, used by criminals tend, so far as one can tell, to be different from those manufactured. This is true despite occasional allegations that criminals, and particularly younger criminals, prefer new guns (defined as less than 3 years old) (Kennedy, Piehl, & Braga, 1996; Pierce, Briggs, & Carlson, 1996). Those findings are based upon tracing data, which are unrepresentative of guns actually used by criminals, data generally

worthless for analyzing anything about the criminal misuse of firearms (Kopel & Blackman, 2000). Data from police departments reporting the guns actually seized from criminals generally find a substantial lag time between manufacturing trends and criminal-misuse trends. Perhaps the most important lag is the one reported for the use of revolvers compared to semi-automatic pistols. While pistols have gone from roughly one-fourth to three-fourths of newly manufactured handguns by halfway into the time frame covered in the figures and tables, periodic reports would suggest they account for closer to half of the guns seized by local police from actual criminals. And their use in homicides lags behind production (Wintemute, 2000, pp. 53-54); their use even lags somewhat behind in tracing studies, where possessory offenses and newer guns are emphasized (BATF, 1999; Kopel & Blackman, 2000).

Ammunition

One problem in determining the potential stopping power of new handguns is that kinetic energy--at the muzzle or any particular distance out--and other factors affecting "deadliness," are affected by the ammunition. Both the weight of the bullet and the amount of powder propelling it affect energy and stopping power. In addition, however, less measurable aspects of the ammunition, including the shape and material composition of the bullet, affect how it will impact a target. It is certainly possible to observe that available ammunition has become more effective during the past decade, but very little can be said beyond that. The minimal available information on newly manufactured firearms is considerably more detailed than information on ammunition. No-one knows much of anything about ammunition preferences or use by criminals. And ways to measure the effectiveness of ammunition vary extensively (Marshall & Sanow, 1996 and 2001)--with some warning that neither velocity nor kinetic energy can really be relied upon to explain wound ballistics (Fackler, 1988). One could, therefore, perhaps say that available ammunition has been getting "deadlier" over the past decade, but measuring how much, or determining whether the statement were also valid as applied to ammunition apt to be misused by would-be killers, is not possible, and is unlikely to become possible any time soon. Forensics expert rarely, if ever, are called upon for statistical data collection regarding ammunition, and the few medical professionals who have tried have shown no competency even at the simplest matters (Caruso, Jara, & Swan, 1999[8]).

Improvements in ammunition may increase the potential deadliness from the misuse of the same old handguns, but there are no data readily available. It is likely that specialized ammunition is not generally known about by opportunist criminals. At any rate, the ammunition improvements have been mostly during the 1990s, when gun misuse in homicide has been a diminishing rather than increasing problem. And political controversies over ammunition have

[8]On the other hand, Caruso, et al., were not capable even of citing other researchers correctly, falsely suggesting that Teret and Wintemute (1993) asserted that convenience gun dealers accounted for 80% of gun sales and were a predominant source of crime guns; they then noted that, "If the sales by means of this route were severely restricted...almost all of the homicides in the inner cities would not take place." Teret and Wintemute merely stated that most dealers were convenience dealers, not that they sold most guns, nor that they were a predominant course of crime guns. Most such dealers were driven from business during the Clinton administration; some inner-city homicides continue to occur.

generally not related to any data involving misuse, availability, or actual effect. To note the obvious, the so-called "cop-killer" bullet, in addition to not being used to kill cops, was a round that would have made a smaller and cleaner--and lead "deadly"--wound than other ammunition. Its use *would* have been associated with more treatable wounds, and wounds generally allowing the wounded to return fire, should he, too, be armed.[9]

FIREARM AVAILABILITY AND ITS MEASUREMENT

The controversy over whether there is a relationship between firearms availability and homicide or other violent crime is often solved simply by assuming it. One of the best-known explanations for the increase in youth homicide in the late 1980s and early 1990s, for example, was by Alfred Blumstein (1995), attributing the increased rate to an "arms race," with more young persons arming themselves because others are arming themselves, first those engaged in the drug trade, and then others for self defense as guns were diffused throughout large groups of young urban males. Kleck (1997, pp. 72-73) complains:

> It would be illegitimate to engage in the circular reasoning of attributing a gun homicide increase to gun increases, and then to cite gun homicide increases as one's only evidence of the gun increase. Yet, Blumstein offered no other evidence of the gun "diffusion" that he speculated was partly responsible for increases in gun homicide.

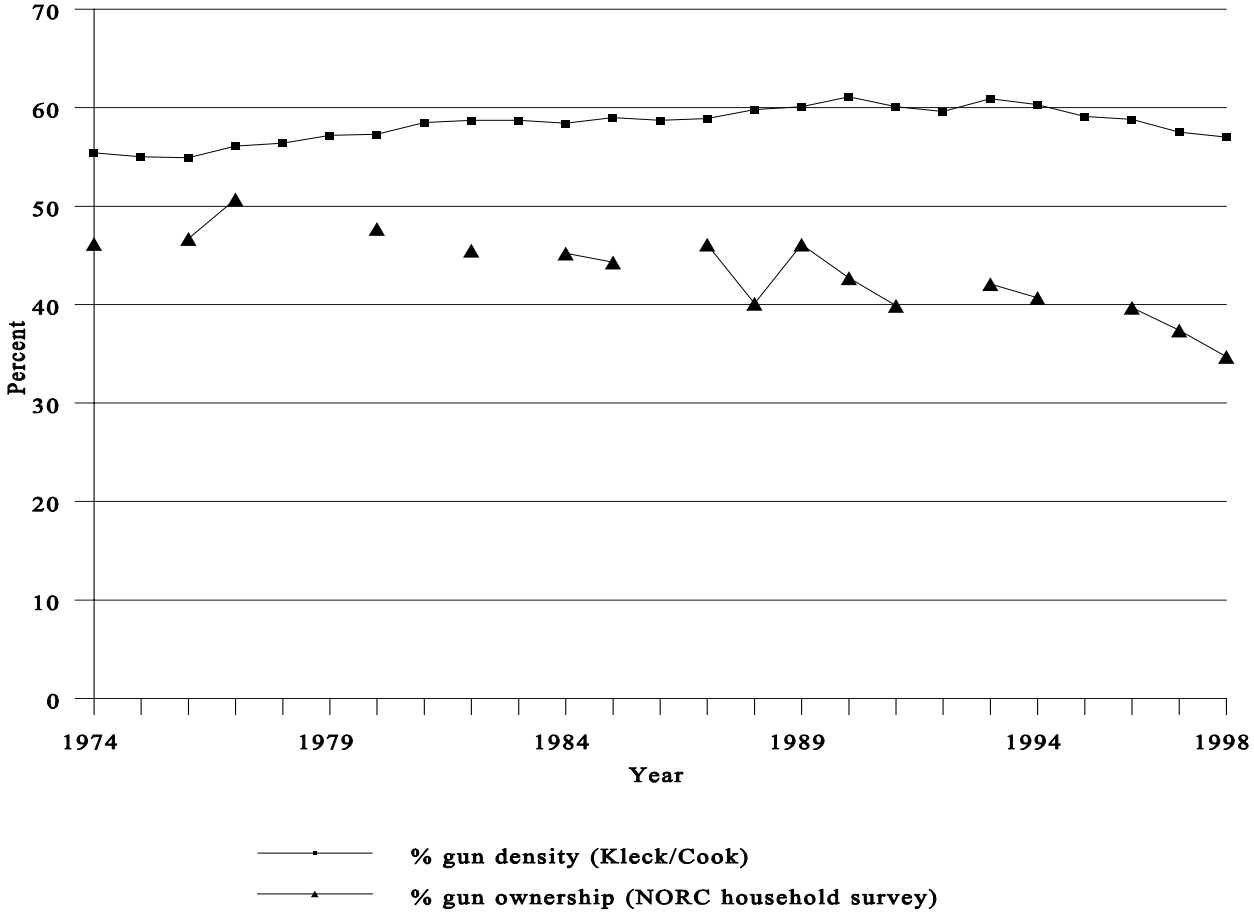
The same sort of circular approach that Blumstein took to explain youth homicide trends is taken frequently for other criminological and public health studies of firearm availability and homicide or other criminal violence. It may be done by assuming that availability explains homicide fluctuations in the U.S. overall or among segments of the population, or it may be done by comparing the U.S. to other countries, and assuming the U.S. has high levels of ownership/availability and the rest of the industrialized world low levels. The latter approach neglects apparently vast differences between various industrialized countries, making gun availability in some countries more on a par with American availability than with countries ranking very low in availability. To the extent it is measured, gun availability varies tremendously among the various developed countries, with several countries apparently closer to contemporary survey-related American levels than to levels in other foreign countries. Canada, France, and the Scandinavian countries, for example, with gun availability reported in roughly 30% of households, are more like the United States--especially using surveys showing only 35% of household gun ownership (Cook & Ludwig, 1996, p. 9)--than they are like Great Britain or the

[9]Exploding ammunition was developed to increase stopping power while reducing penetration; if it worked, there would have been serious shallow wounds rather than bullets expanding on their way through the body. John Hinckley used such ammunition, originally developed for air marshals to minimize damage to aircraft, against President Ronald Reagan, but it failed to explode. If it had worked, since Reagan was hit on a ricochet, he probably would not have been injured at all. Black Talon ammunition was designed to spread more consistently than similar expanding ammunition that has been available for decades. Black Rhino ammunition never made it off the drawing board. And occasional reports of exploding armor-piercing ammunition are the figment of the imagination.

Netherlands, with less than 6% household gun ownership, but the various homicide rates are nowhere near so divergent (Killias, 1990).

However, while homicide rates in the U.S. have fluctuated, it is less clear that gun availability has similarly fluctuated. To the extent survey research is a reliable measure of gun availability, gun ownership trends have been fairly stable over time or they have been diminishing during the past decade or so (Figure 2). To the extent availability is measured by arms production--domestic manufactures plus imports minus exports--gun availability has always increased faster than the rate of population, but to varying degrees, which do not appear related to homicide trends. (See Table 1, Columns A, H, and I.)

FIGURE 2. Measures of Gun Availability, 1974-1998[10]



[10]Gun density is the percentage of suicides involving firearms, per Kleck, 1997, p. 254, and Cook, 2001, with data from Kleck, 1997, pp. 289-90, and NCHS. Survey data on percentage of households with guns from Smith, 2000, p. 52.

At first glance, trends in gun manufacturing and importation seem more related to the politics of "gun control," as gun purchases tend to be encouraged both by the consideration and adoption of restrictive gun laws, as would-be buyers purchase preemptively, fearing that things will get worse and firearms harder lawfully to obtain. There was extensive congressional and state consideration of restrictive gun laws in the 1970s--and an effort to achieve substantial regulation by administrative fiat in 1978--although little legislation was enacted, at least at the federal level. Another push for at least local handgun bans was spurred by the ban adopted by Morton Grove, Illinois, in 1981, but the early 1980s generally saw greater congressional consideration of reforms weakening some federal regulation, culminating in the Firearms Owners' Protection Act, passed by the Senate in 1985 and enacted into law in May 1986. After Maryland's creation of a handgun roster board to determine which handguns might lawfully be sold in the state, the so-called "assault weapons" issue predominated from 1989 until a prospective federal ban was adopted in 1994, a year after the Brady Act was enacted. And, in November 1994, a Republican Congress was elected, promising no more federal anti-gun legislation would be enacted.

Unfortunately, it is unclear that survey research is reliable. For some time, most surveys tended to report that about 45-50% of American households reported gun ownership, with the percentage reporting handgun ownership rising from roughly one-sixth of households to roughly 23% by the 1970s, and then remaining fairly stable at just under a quarter of households. More recently, however (from about 1988 on), surveys have sometimes reported fewer households with guns in them, so the apparent trend in gun availability--as measured in household ownership by NORC surveys--is fairly sharply down, to more like 35-40% of households. Interestingly, there has been no similar decline reported in the percentage of adult personally owning a gun in the same surveys, varying between about 25 and 31% from 1980 to 1999 (Smith, 2000, p. 52).[11]

One possible explanation is that gun ownership is down. There has certainly been a decrease in the rate at which new guns are manufactured over the years, although even that trend waxes and wanes, apparently more related to "gun control" politics than to crime trends. Another

[11]Firearms are by no means the only topic where survey research can produce unreliable or unconvincing results. "Despite the three-decades-long ban on television advertising for cigarettes, a substantial portion [54%] of U.S. smokers age 18 to 34 say they've seen a cigarette ad on television in the last year." Eighty-four percent indicated they had seen such an advertisement in the last five years ("Smokin' ads," 2001).

explanation, however, is that a willingness to acknowledge gun ownership is down--perhaps based on the traditional concern of survey researchers that respondents tend to give socially acceptable answers, and demonization of guns and gun owners during the past 10-15 years has made an affirmative answer to the gun ownership question socially unacceptable.[12]

But it is also possible that surveys, particularly those that ask about gun ownership after a series of questions calling to mind criminal and other misuse of firearms, may suggest to respondents that gun ownership is not socially respectable and encourage false-negative responses. Supporting this possibility are survey results where the question of gun ownership does not follow such questions, but follows questions where the sporting uses of firearms are first discussed, or no suggestion of gun misuse precedes the question. An election survey of voters (where gun owners may be overrepresented), where other questions dealt more with politics than crime, found 48% of households reporting gun ownership (Page, 2001; Simon, 2001). A recent survey by Zogby International, dealing primarily with the terrorist attacks of

[12]Compounding the problem is the fact that females have generally reported dramatically less ownership than males, which may be credible for personal ownership but not for household ownership among married men and women. Cook and Ludwig, and Kleck, for example, noted that an American surveys found 49 or 50% of married men reporting gun ownership but only 36 or 37% of married women, and a Canadian survey reported about 39% and 23%, respectively (Cook & Ludwig, 1996, p. 11; Kleck, 1997, p. 67). And a 1997 survey of 8,000 adults in Los Angeles County conducted by Field Research Corporation found 28% of married men reporting household gun ownership but only 18% of married women (Los Angeles County Health Survey, analysis apparently by Billie Weiss, undated, unpublished document discovered in municipal gun litigation). The usual assumption is that women are underreporting gun ownership rather than men overreporting it, with some of that underreporting based on ignorance of what males in the household own. In all likelihood, efforts to determine the *numbers* of guns per gun-owning household are even more apt to be rendered inaccurate by inaccurate reporting, as more persons are willing to acknowledge guns in the household than to reveal accurately how many there are. For example, a survey of *Guns & Ammo* readers indicated that most said they would honestly report gun ownership to survey researchers, but that most respondents said they would not be truthful regarding the number owned (personal communication from Paul Gallant, co-conductor of the 2001 survey). In addition to some reluctance by respondents accurately to recall the number of firearms owned, (a) at some point all survey reports simply note "*n* or more" where *n* is generally less than a dozen, (b) those owning large numbers of firearms may not even be aware of the precise number they own and would have to guess, (c) understanding which firearms they are to count--in the home, garage, motor vehicles, vacation home, etc.--may be unclear, and (d) deciding what is a gun or firearm is problematic (broken guns, unassembled parts, blackpowder guns, air guns, etc.) and the understanding of respondents may vary. Answers may be further complicated by question wording, which may include reference to a garage or vehicle, but generally do not refer to place of business, and descriptions of guns may be odd. For example, a reason Harris Poll asked "Do you happen to have in your home or garage any guns or revolvers?" (Harris Interactive, 2001, May 30). It is unclear how gun owners comprehend questions developed by persons ignorant about firearms.

September 2001 and responses to them, found 46% of households reporting gun ownership (Zogby International, 2001). And a survey conducted by Roper Starch for the National Shooting Sports Foundation (Roper Starch Worldwide, Inc., 2001), where ownership questions were preceded by a series indicating the sporting uses of firearms, 39.5% of respondents reported personal ownership of firearms, with recent NORC data (Smith, 2000, p. 52) finding 27.2% of individuals reporting personal ownership.[13] But even surveys with crime as a gun-ownership-discouraging prelude sometimes find responses around 42-43%, including a Hart survey conducted for the Center to Prevent Handgun Violence--asked of households with children only --and one conducted by David Hemenway at the Harvard School of Public Health (personal communication from Douglas Weil, CPHV; Miller, Azrael, & Hemenway, 2000, p. 712).

Supporting the view that recent survey results are unreliable is the increasingly popular proxy measure for gun ownership. First Kleck (whose research is preferred by gun owners groups more than by anti-gun advocates) used the percentage of suicides involving firearms as a proxy measure of gun ownership (Kleck, 1998). Then anti-gun researchers Cook and Hemenway independently reached the same conclusion (Cook, 2001). Yet, by that measure (which Cook is thus far unwilling to espouse for subgroupings--ethnicity, sex--within a community--personal communication, April 12, 2001), there has been no real trend in U.S. gun availability, with gun use fairly consistent at 55-60% of American suicides over a quarter-century period (highest when homicides were rising and when they were falling, and similarly fairly low when homicides were about to peak and when, relatively speaking, plummeting). (See Figure 2.)

Survey research data thus appear potentially unreliable, more affected by trends in gun acceptability than availability. Manufacturing trends have long been recognized as reflecting how many guns each gun owner has more than how many gun owners there are. And the suicide percentage trend appears fairly stable, with some question as to whether it is a valid measure for trends (Kleck, 1998).

Other proxies for measuring gun ownership have other problems. Both pro-gun and anti-gun studies have used hunting licenses--clearly a measure of sport-related ownership, rather than overall ownership--as surrogate measures, and found that measure of gun ownership to be inversely related to rates of criminal violence (Krug, 1967 and 1968; Eskridge, 1985) rather than overall ownership. Those studies were interested in comparing ownership to criminal violence, not to trends in ownership, although the same problem would have occurred: the measure would have been trends in ownership for the most common sporting use of firearms, but not of firearms overall, or even of all ownership for sport (Kleck, 1997, p. 86).

Similar, and additional, problems would also exist with efforts to use subscriptions to or purchases of gun owners' magazines, or changes in those numbers, as surrogate measures for gun availability, or trends in gun availability. Lester (1989) provides an example of using

[13]The wording of the two surveys' questions differed, with Roper Starch seeking personal ownership but not emphasizing it in the question, merely asking, "Do you own a firearm?" A follow-up question asked "Does anyone living in your household, besides yourself, own a firearm?" The gun-ownership questions and results were from personal communication with NSSF (July 10, 2001) and are not included in the published report.

magazine subscriptions as a surrogate measure of gun ownership to find a relationship with suicide rates but not with homicide rates. Duggan (2000) drew recent media attention using trends in some magazines--including the three official journals of the NRA--as a surrogate for trends in gun ownership to show a positive relationship to violent crime.

One problem is that magazine sales or subscriptions (and NRA membership) are measures not merely of gun ownership but of discretionary income--and, in the case of NRA membership, perceptions of threats to gun ownership. NRA membership tends to fluctuate at least partly in relationship to the politics of gun control. And economic factors play a role as well. Although surveys generally indicate relatively high levels of gun ownership in the South, magazine subscriptions (Lester, 1989, p. 520) show relatively low levels of subscriptions in most southern states, something that has generally been the case regarding NRA membership as well. In addition, to some extent, magazine subscriptions may serve as a substitute for guns, explaining the popularity of handgun magazines in Japan and in Chicago, where handgun sales are all but prohibited. Using magazine sales--as opposed to subscriptions--to measure trends also fails to take into account marketing effects on sales, where promotional experts have noted that handgun covers sell better on newsstands than other gun-magazine covers. And, of course, there are other explanations for trends in magazine sales, including the perceived quality of the publication. Duggan (2000) associated a decline in *Guns & Ammo* readership and homicide rates; others have attributed the decline to the declining quality of the magazine, and noted that *Guns & Ammo* is more newsstand based than subscription driven, with greater fluctuations possible (personal communication). Duggan notes a contemporaneous decline in NRA membership (measured by subscriptions to the organization's magazines) when homicide rates were falling, but that time frame also followed the NRA's political and electoral successes from 1994-2000, reducing the threat of additional gun laws federally and in most states, and, indeed, contemporaneous with state legislative successes for the NRA in obtaining "right to carry" legislation in a majority of the states. That gun-related homicide rates fell more would simply conform to Kleck's observation (1997, pp. 257-58) that "gun homicide rates in the United States are more volatile than nongun homicide rates, and that both increases and decreases in homicide are proportionately larger in the gun homicide category, even during periods when changes in gun control strictness could not have been responsible." There are also logical problems in comparing trends in magazine subscriptions with trends in homicide rates, since subscriptions disproportionately involve rural White males with above average income (Duggan, 2000, p. 6) while homicides do not; and homicides disproportionately involve handguns, which are not necessarily owned by gun-magazine subscribers.[14] And even some measures of gun availability may leave open the question of which came first--which was the cause and which the effect, if either--the increase in guns or the increase in homicide, although Duggan attempts to control for this.

[14]Duggan (2000, p. 5) notes that *Guns & Ammo* is focused more on handguns than three other magazines (*American Rifleman*, *American Hunter*, and *North American Hunter*). According to a 2000 marketing survey by Mediamark Research, Inc., the statement is not entirely true, with *American Rifleman* a few percentage points above *Guns & Ammo* in handgun ownership by readers, with *Guns & Ammo* 2-3 points above the other two magazines. More importantly, the statement is somewhat misleading, as all report readership handgun ownership levels below one-third.

Another clearly problematic surrogate measure of availability--somewhat circular as the argument that guns are more available because they are misused more--is gun-related arrest trends (Blumstein, 2000, pp. 35-36). In addition to measuring availability to criminal suspects rather than general availability, arrest trends may reflect policing trends rather than firearm availability trends. Told that youthful gun violence is the problem, law enforcement may be encouraged more actively to enforce unlawful possession and carrying laws than previously, and they may aim at certain segments of the population or at certain neighborhoods (see, e.g., Sherman & Rogan, 1995).

Another issue in availability is gun availability by different segments of the population, particularly with homicide studies focusing on urban youth and/or minorities (Blumstein, 2000). Traditional surveys do not inquire about gun ownership by persons under age 18, with relatively lower levels of gun ownership by young adults, ethnic minorities, and urbanites. Surveys of youth pose gun ownership questions differently, but, to the extent they may be compared to roughly similar questions of young adults, find lower levels of ownership among persons under 18. For example, while young adults report household ownership around 36% (Table 2; Kleck, 1997, p. 101), a survey of junior-high and high-school students, asking the somewhat different question of whether there was access to guns in the home, noted that 24% of respondents "reported that guns were easily accessible at home" (Resnick, Bearman, Blum, et al., 1997, p. 828). With more standard surveys, gun ownership tends to increase with age, at least until late middle age, but firearm misuse is the reverse of that--except for suicide, where the oldest males are more likely to be victims--and ownership rates decline before suicide rates rise.

With some exceptions, most measures of gun ownership show ownership to rise with factors associated with lower homicide and other violent crime rates, such as income, social status, and lack of population density. Married persons are more apt to own firearms than singletons and less apt to be involved in criminal violence and homicide.[15] In terms of ethnicity, gun ownership tends to be higher among Whites than among Blacks or Hispanics--although both gun ownership and criminal violence rates are low among Asian Americans. A key exception is sex; men own guns more than women and kill more than women. Another is religion, where Jewish rates of gun ownership, criminal offending, and victimization are all low. But poor inner-city young Black males report relatively low levels of gun ownership. (See Table 2.) And the problem of homicide's rise in the late 1980s and early '90s was among young Black males, with other homicide rates declining (Blumstein, 2000, pp.19-20; Fox, 2000, pp. 291-307).

[15]A rather limited exception demonstrates the problem of focusing on firearms rather than homicide. Intimate partners are, per capita, much more likely to kill boyfriends, girlfriends, and common-law spouses than legal spouses, who are more apt to own guns, but the percentage of gun use in those homicides is higher among legal spouses than the others (Paulozzi, Saltzman, Thompson, & Holmgreen, 2001).

It may be difficult to measure gun availability--it may even be challenging to define what one means by it--but, to the extent one is attempting to study gun availability as a possible factor in homicides, it is necessary, whether using some criminological model or measuring the "exposure" to a possible "pathogen" suggested in the public health model. To date, trends in types of guns and availability have been more assumed than measured.

TABLE 2. Who Owns Guns?

Respondent/Household Characteristic	% Respondents Owning a: Gun	Handgun	% Households Owning a: Gun	Handgun
Total Population	27.8	16.2	41.8	22.7
Sex				
Male	49.1	26.9	52.3	28.4
Female	11.5	8.1	33.7	18.4
Race				
White	29.4	17.2	44.4	23.9
Black	20.6	12.7	29.0	17.6
Other	17.3	7.9	25.2	12.6
Black Males18-39	26.3	15.5	34.5	22.4
Urban Black Males 18-39	19.0	9.1	22.7	9.1
Urban Black Males 18-39, income < $10,000	15.4	0.0	15.4	0.0
Ethnic Group				
Hispanic	19.6	14.0	28.7	19.6
Age Category				
18-24	19.1	10.0	35.7	17.1
25-29	25.5	13.4	37.1	19.1
30-39	28.4	16.3	41.5	23.2
40-64	30.0	19.6	47.3	27.1
65 and over	28.9	14.7	37.6	18.9
Marital Status				
Married	34.1	19.4	53.5	28.5
Widowed	20.5	12.7	26.3	14.5
Divorced	25.7	17.0	32.1	19.4
Separated	16.5	10.1	24.1	13.9
Never Married	19.0	10.6	29.5	16.2

Respondent/Household Characteristic	% Respondents Owning a: Gun	Handgun	% Households Owning a: Gun	Handgun
Religion				
Protestant	30.8	18.0	47.1	25.8
Catholic	23.0	13.0	34.3	17.3
Jewish	6.5	3.2	8.1	4.8
Other	18.1	13.9	25.0	19.4
None	25.9	15.8	34.7	19.8
Family Income				
Under $10,000	18.9	9.5	26.3	12.9
$10,000-$19,999	25.6	11.4	37.6	15.9
$20,000-$24,999	36.8	21.1	47.0	27.1
$25,000 or more	30.3	19.5	48.0	27.9
Occupation				
Professional, technical	21.8	12.9	33.5	18.2
Manager, administrator, sales workers	32.4	21.8	42.5	26.8
Clerical	13.2	10.7	37.5	21.3
Craftsmen, Operatives	46.5	23.0	57.6	26.3
Farmers, farm laborers	66.7	44.4	83.3	44.4
Service Workers	17.0	12.4	36.3	23.9
Education (last grade completed)				
0-7	36.4	16.1	44.9	18.6
8-11	30.1	14.6	43.0	20.3
12	31.0	18.2	48.2	25.9
1-3 years of college	27.4	18.2	41.5	24.5
4 years of college	18.9	12.7	31.5	20.5
Over 4 years of college	22.9	13.0	32.4	17.1
Size of place of residence				
Under 5,000 population	40.8	21.1	60.4	29.4
5,000 - 49,999	27.8	16.7	42.4	22.9
50,000 - 249,000	22.8	14.7	32.9	19.7
250,000 - 999,999	15.2	10.8	28.3	17.2
1,000,000 or more	9.1	6.5	11.5	7.7

Respondent/Household Characteristic	% Respondents Owning a: Gun	Handgun	% Households Owning a: Gun	Handgun
Region				
New England	17.3	9.4	27.6	14.2
Middle Atlantic	17.8	7.9	28.9	13.1
East North Central	24.7	14.6	40.1	20.6
West North Central	35.1	12.8	49.8	17.2
South Atlantic	30.0	18.3	46.0	27.1
East South Central	41.0	24.6	60.6	33.7
West South Central	39.2	26.9	54.2	35.4
Mountain	31.0	23.8	43.7	28.6
Pacific	23.2	14.7	34.2	18.4
Political Views				
Liberal	22.0	13.0	33.5	18.6
Moderate	28.4	16.4	43.1	23.0
Conservative	32.2	19.0	47.6	26.4
Hunter				
Yes	78.3	43.1	82.7	45.4
No	19.1	11.5	30.6	16.8
Afraid to walk in own area				
Yes	17.0	11.2	33.1	18.9
No	36.0	20.1	48.5	25.7
Burglarized in past year				
Yes	26.1	18.6	38.1	23.2
No	28.0	16.1	42.0	22.7
Robbed in past year				
Yes	21.1	15.8	25.9	19.0
No	28.0	16.3	42.1	22.8

SOURCE: Kleck, 1997, pp. 101-102. No answer, don't know, and other missing responses were excluded before calculating percentages.

CONCLUSION

Whether properly considering gun "deadliness" and ownership trends as one factor to be evaluated, or simplistically considering those the only factors to be noted, homicide researchers should at least attempt accurately to evaluate the gun factor. This requires at least a minimal knowledge about the facts about guns. The lack of such knowledge leads to such bizarre statements as the government's that a "semiautomatic assault gun" fires "continuously as long as

the trigger is pulled" (Harlow, 2001, p. 2)--the definition of a full-auto, not a semi-auto firearms. Not all of the potentially useful data exist, but those that do may be useful in improving the efforts of homicide researchers.

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REGIONAL VARIATIONS IN LETHAL AND NON-LETHAL ASSAULTS

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ABSTRACT

Data from the National Incident-Based Reporting System (the new Uniform Crime Reports) for 1999 and data from the 2000 U.S. Census are used to evaluate aspects of recent "culture of violence" theories. Victim and offender rates of murder, assaults, and robbery are examined by race for 17 states with a special emphasis on cities in Iowa and South Carolina. The analysis provides little indication of a White code of honor in southern cities. The most striking aspects of the results are the Black homicide offender rates. They are much higher than the White rates North and South. These high Black offender rates are not, in themselves, support for the existence of a widespread "Black code of the streets" but neither do they call this possibility into question. Whether sustained by cultural pressures or isolation and exclusion from the main stream of American life, high Black rates of violence call for explanations that go beyond the use of regional differences in overall state level rates of violence.

RECENT THEORY

The most useful theory for this analysis is that presented by Fox Butterfield (1995) and Elijah Anderson (1999). Butterfield describes a southern concern for honor that produced lethal violence by White males before, during, and after the American Civil War. His general thesis is that this concern for honor transmuted into a concern of Black males for respect and that this desire for respect in turn produces much of the lethal violence by Black males seen in contemporary American society.

In my view, Butterfield does not make a convincing case for the transition from a southern, White code of honor to a Black code of the streets as he follows four generations of Black males from South Carolina to New York. But, while discussing what he sees as a widely shared concern for respect among Black males and their belief that they need to fight to be respected, he provides a plausible, partial explanation for the high Black murder victimization rates in some areas of America's largest cities.

Although Butterfield describes the older Southern notion of honor as producing a set of people who were touchy, quick to take offense, and willing, perhaps eager, to use violence to protect their reputations and good names, he suggests the concept of honor becomes more dangerous when combined with poverty, racism, and segregation. He sees concern for honor or respect in this context contributing to a ritual of insult and revenge that produces very high murder victimization rates for Black men.

Elijah Anderson expands on the notion of honor in his description of a code of the street. He describes it as a desperate search for respect designed to provide protection from attack.

Similar to the concern for honor, the code focuses on respect and disrespect and the respect sought may sometimes be thought of as fear. Anderson suggests that a large number of Black men and perhaps some Black women believe that to survive on the street you have to present yourself as tough and capable of violence, be willing to fight, and retaliate if attacked. The description constitutes one possible explanation for the very high murder rates in some areas of most major cities in the United States.

Butterfield and Anderson's approaches to honor and respect may be new but the concept of a southern culture of violence is not. Wolfgang and Ferracuti (1967), Gastil (1971), and many others have used it to explain generally higher rates of violence in southern states or by Americans with southern origins. I think it is accurate to say that Butterfield and Anderson provide some of the latest variations in attempts to explain regional and racial variations in levels of lethal and non-lethal violence. Whitt, Corzine, and Huff-Corzine (1995) provide an extensive review of variations on southern culture of violence theory and research. This analysis does not move in the same direction but focuses on the ways in which variations in offender rates by race weaken the notion of an a general southern culture of violence.

IOWA AND SOUTH CAROLINA

My analysis begins with a comparison of lethal and non-lethal violence in Iowa and South Carolina. These states were selected for the initial analysis because both have near complete participation in the National Incident-Based Reporting System (the new Uniform Crime Reports program) and each represents a distinctly different region of the country. South Carolina is a southern state by any definition. One of the 11 states of the confederacy and the state that ignited the U.S. Civil War, South Carolina was a slave state that remained officially segregated though the first 64 years of the 20th century. Butterfield uses South Carolina to illustrate the historic components of a southern code of honor. In contrast, Iowa was a free state that fought on the Union side. It never officially developed or maintained a set of laws designed to subjugate its Black population. There is little indication that any substantial number of its White citizens subscribed to a code of honor.

In this analysis I assume that *if* there are still much higher rates of violent crime committed by White men in South Carolina than there are in Iowa, one plausible explanation would be that there are remnants of a southern concern for honor still operating in the South. Even if we cannot interpret higher White rates of violence in South Carolina than in Iowa as evidence of a lingering code of honor, finding little or no difference in the rates of violent crime by White males in these two states would at least call into question the suggestion that some high homicide offender rates can be explained by lingering concerns for honor.

The top section of Table 1 shows the counts not rates for groups of offenses reported in the new Uniform Crime Reports program (NIBRS). As indicated in the second note in Table 1, of the five columns only murder and robbery are single offenses. The assault counts include aggravated assault, simple assault, and intimidation. The sexual assault column includes rape, forcible sodomy, sexual assault with an object, and forcible fondling. The "Other Assaults" column includes kidnapping, negligent manslaughter, and two non-violent offenses (incest and statutory rape).

TABLE 1. Counts of Violent Crime for Iowa and South Carolina from the New Uniform Crime Reports (NIBRS) for 1999[1]

Incident Counts [2]

	Murder	Assault	Sexual Assault	Other Assaults	Robbery
All [3]	1,118	464,960	27,822	6,555	22,336
Iowa	44	25,913	1,719	282	1,029
South Carolina	256	99,043	3,710	1,180	5,893

Victim Counts

	Murder	Assault	Sexual Assault	Other Assaults	Robbery
All [3]	1,211	517,894	30,122	7,341	28,356
Iowa	49	28,279	1,866	299	1,204
South Carolina	269	112,059	3,871	1,297	8,503

Offender Counts

	Murder	Assault	Sexual Assault	Other Assaults	Robbery
All [3]	1,442	507,839	29,209	7,510	28,254
Iowa	49	27,536	1,746	307	1,069
South Carolina	414	115,697	4,127	1,521	9,236

[1] The new Uniform Crime Reports system is currently called the National Incident-Based Reporting System.

[2] The Assault Column includes counts of Aggravated Assault, Simple Assault, and Intimidation. The Sexual Assault column includes counts of Rape, Forcible Sodomy, Sexual Assault with an object, and Forcible Fondling. The Other Assaults column includes counts of Negligent Manslaughter, Kidnapping, Statutory rape, and Incest.

[3] All police agencies providing NIBRS counts in 1999. The age, race, or sex of some victims and some offenders is missing.

The murder and robbery incident counts shown in the top part of Table 1 can be obtained from the data compiled in the traditional UCR program. They are essentially offenses known to the police. The robbery counts include robberies in which those victimized were members of an organization or company. For this reason, the number of robberies will drop when they are counted by the race of the victim or offender. Age, race, and sex information is not collected in robberies of organizations or commercial establishments.

The bottom two parts of the table show the new UCR's advantage over the old system. The victimization and offender information indicates that many incidents produce multiple victims and that multiple offenders are involved in many violent crime incidents. There were, for example, 1,118 murder incidents reported for the complete set of agencies providing NIBRS data for 1999. Because of multiple victims, these incidents produced 1,211 murder victims. Because some incidents involved more than one offender, the same incidents produced 1,442 offenders. It is important to remember that those reported as offenders may or may not have been arrested. The information on offenders in the new UCR program comes from victims and witnesses and is not simply a description of persons arrested.

VICTIM AND OFFENDER RATES

Table 2 shows the offense, victim, and offender *rates* for Iowa and South Carolina and for the combined set of agencies providing NIBRS data for 1999. It indicates that there are indeed differences between Iowa and South Carolina. All of the victimization rates for these offenses are higher for South Carolina than they are for Iowa; all of the offender rates for South Carolina are higher than the Iowa rates. The murder victimization rate for South Carolina is almost four times as high as the same rate for Iowa. The rate at which people are reported as murder offenders in South Carolina is almost six times as high as the murder offender rate in Iowa. If we were limited to this information, we would conclude that the notion of a southern code of honor remains plausible.

We can extend this oversimplified state-level analysis by looking at the NIBRS information that is available for the northern states of Ohio, Massachusetts, and Michigan and the southern states of Tennessee, Texas, and Virginia. Unlike Iowa and South Carolina, not all of the police agencies in these states participated in the NIBRS program in 1999. By totaling the counts of victims reported by participating agencies and summing the population estimates assigned by the FBI to the same agencies, we can compute murder and assault victimization rates. Following a similar procedure, we can compute offender rates.

TABLE 2. Rates of Violent Crime for Iowa and South Carolina from the New Uniform Crime Reports (NIBRS) for 1999 [1]

Incident Rates (per 100,000) [2]

	Murder	Assault	Sexual Assault	Other Assaults	Robbery
All [3]	3.2	1,317.6	78.8	18.6	63.3
Iowa	1.6	931.5	61.8	10.1	37.0
South Carolina	6.6	2,555.7	69.9	30.4	152.1

Victim Rates (per 100,000)

	Murder	Assault	Sexual Assault	Other Assaults	Robbery
All [3]	3.3	1,423.9	82.0	20.1	78.4
Iowa	1.8	1,016.9	67.1	10.8	43.3
South Carolina	6.9	2,886.4	99.7	33.4	219.0

Offender Rates (per 100,000)

	Murder	Assault	Sexual Assault	Other Assaults	Robbery
All [3]	4.0	1,426.9	82.1	21.1	79.4
Iowa	1.8	990.1	62.8	11.0	38.4
South Carolina	10.7	2,980.1	106.3	39.2	237.9

When such rates are computed for these and nine other states (Colorado, Connecticut, Idaho, Kentucky, Nebraska, North Dakota, Utah, Vermont, and West Virginia), Figure 1 indicates that the highest murder offender rates are those for South Carolina, Texas, Kentucky, and Virginia. The lowest murder offender rates are those for Connecticut, North Dakota, Vermont, Iowa, and Massachusetts. This pattern is still consistent with suggestions of regional differences and a more violent south. The rates for Kentucky are the most questionable measures in Figure 1 because they reflect the submissions of just four police agencies.

Since it is possible that these state-level rates might reflect either a subculture of violence among White residents that might be described as a "southern culture of violence" or a subculture of violence among Black residents that might be seen as reflecting a "code of the

[1, 2, 3] See Notes in Table 1 for all footnotes in table.

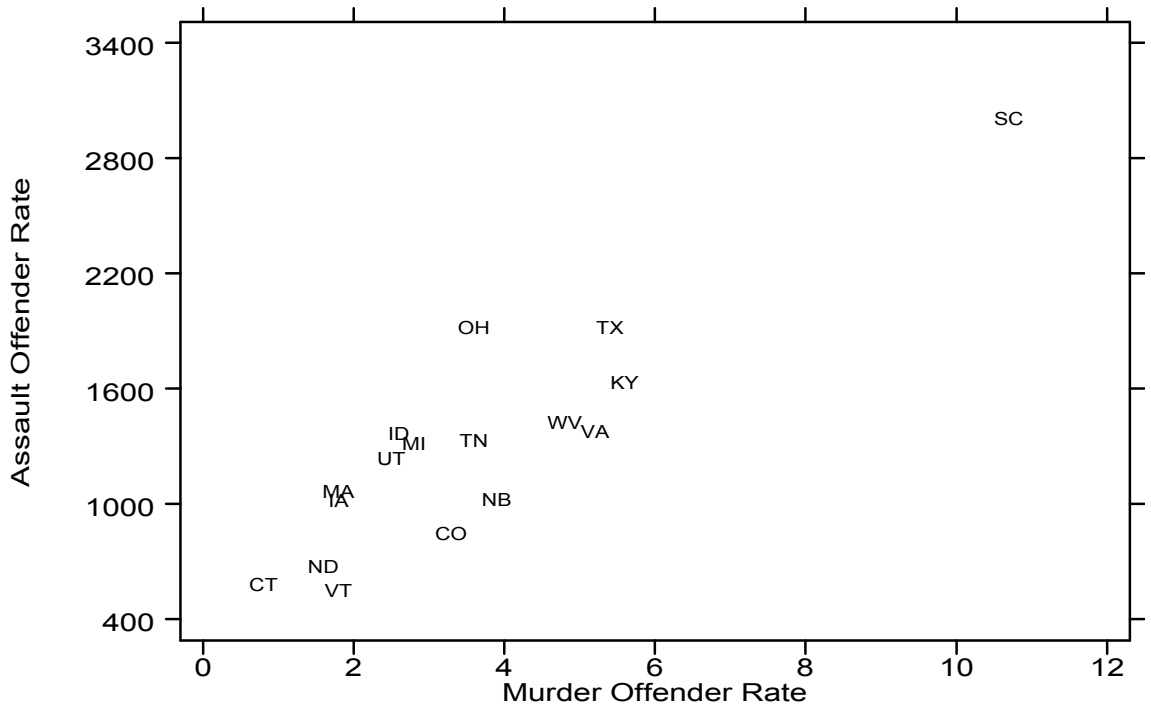

Figure1. Murder and Assault Rates for 17 States, 1999

street"—or both, Table 3 presents the victimization and offender rates for Iowa and South Carolina by race. While the most important part of Table 3 is the part that contains the offender rates, the victimization rates are interesting. If the police reports in both states are accurate, White South Carolinians are more likely to be victims of murder, robbery, and assaults of all kinds than White Iowans. They are murdered at rates two-and-one-half times as high as White Iowans are murdered. But with murder victim rates of 13.6 and 14.2 respectively, Black Iowans are only slightly less likely to be murder victims than are Black South Carolinians. Moreover, Black Iowans are more likely to be victims of some kind of assault than Black South Carolinians.

While murder and assault victimization rates are interesting, the offender rates are more likely to help us understand the role of culture and subculture as explanations for lethal and non-lethal assaults. As shown in the bottom part of Table 3, the rates at which White offenders were reported for murder, assault, and robbery in South Carolina are higher than the rates at which White Iowans are reported for murder, assault, and robbery. This too appears to support theories suggesting a southern regional culture of violence. But any general conclusion concerning a southern culture of violence is confounded by the fact that the Black offender assault and robbery rates for Iowa are higher than the Black offender assault and robbery rates for South Carolina. Only the Black offender rate for murder is higher in South Carolina than in Iowa. The overall effect is to suggest that if there is a southern culture of violence, it is a White culture and if there is a Black culture of violence, it appears to be stronger in Iowa than it is in South Carolina. Still, the Black murder offender rate is very high (23.7 per 100,000) for South Carolina. And, when we compare rates within South Carolina, the Black robbery and assault rates are much higher than the White robbery and assault rates.

TABLE 3. Rates of Violent Crime for Iowa and South Carolina by race, from the New Uniform Crime Reports (NIBRS) for 1999[1]

	Victim Rates [2]				
	Murder	Assault	Sexual Assault	Other Assaults	Robbery
All [3] (All Races)	3.4	1,423.9	82.0	20.1	78.4
Iowa					
White	1.5	927.6	62.9	9.8	32.4
Black	13.6	5,296.5	240.3	57.9	221.5
South Carolina					
White	4.0	2,191.2	91.8	26.6	150.7
Black	14.2	4,732.4	127.8	51.6	256.1

	Offender Rates				
	Murder	Assault	Sexual Assault	Other Assaults	Robbery
All [3] (All Races)	4.1	1,426.9	82.1	21.1	79.4
Iowa					
White	1.2	820.1	53.2	9.0	19.2
Black	10.2	8,393.0	395.1	104.0	838.4
South Carolina					
White	4.5	1,921.5	74.1	21.0	52.2
Black	23.7	5,459.0	182.3	81.1	648.8

[1, 2, 3] See Notes in Table 1 for all footnotes in table.

CITY RATES

Table 3 highlights a basic limitation of this analysis, which is the absence of Black and White victim and offender rates for all police agencies providing NIBRS counts for 1999. This will be remedied when I use detailed census counts of race to create Black and White population estimates for all cities and towns and counties that submit NIBRS data. This is a sizable project and the information was not available for this analysis. The city level analysis that follows is limited to a selected set of cities—starting with Des Moines, Iowa, and Columbia, South Carolina. Cities providing NIBRS data were selected if they had populations of at least 50,000 and Black populations of at least 700.

U.S. census counts by race for the year 2000 were used to estimate the 1999 Black and White populations for Des Moines, Iowa, and Columbia, South Carolina. Table 4 presents race-specific victim and offender rates for these two cities. Perhaps the most important aspects of Table 4 are the race-specific murder victim rates. Both the White and Black murder *victim* rates are lower for Columbia than for Des Moines. Even the number of White murder *offenders* per 100,000 persons is higher for Des Moines at 3.2 than it is for Columbia at zero. On the other hand, the number of Black offenders per 100,000 persons is roughly 19 per 100,000 people in Des Moines and 29 per 100,000 people in Columbia. Since the White offender assault rates also are higher in Des Moines than in Columbia, it would appear that if there is a southern culture of violence it has lost ground in Columbia. Another striking aspect of these tables is the size of the Black offender murder rates in both cities.

The magnitude of the Black offender murder and assault rates in both Des Moines and Columbia suggests that a Black "code of the street" or some other sub-cultural mechanism may be driving the Black homicide offender rates in both cities. It is possible that such a mechanism or the sheer isolation and exclusion from the main stream of American life of segments of the Black population in Des Moines is driving these rates. To explore the possibility that high murder offender rates are more closely linked to urban segregation and racial inequality than to regional differences, Figure 2 shows the murder and assault rates of a larger set of northern and southern cities.

In Figure 2 we see that southern cities are spread across the murder offender rate spectrum. The highest murder offender rates are for Spartanburg (SPA) and Greenville (GRE), South Carolina. But Newport News (NEW), Virginia, is in the middle. Austin (AUS), Texas, has still lower rates. And Charleston (CHA), South Carolina, is at the lower end of the distribution. On the other hand, four of the five cities with the highest murder rates are in South Carolina. They are Anderson (AND), Columbia (COL), Spartanburg (SPA), and Greenville (GRE). The fifth is Newport News (NEW) in Virginia. Moreover, the lowest murder offender rates are those for northern and western cities. Thus, the murder offender rates for these cities, though showing some variation, still suggest a regional pattern in lethal violence.

TABLE 4. Rates of Violent Crime for Des Moines, Iowa, and Columbia, South Carolina, from the 1999 NIBRS data.

	Victim Rates (per 100,000)				
	Murder	Assault	Sexual Assault	Other Assaults	Robbery
Des Moines					
All	6.8	1,790.5	140.6	24.6	115.5
White	4.0	1,498.4	123.4	19.8	125.1
Black	32.4	4,561.7	311.0	77.8	272.1
Columbia					
All	12.4	3,530.3	135.1	48.0	582.0
White	1.8	1,476.6	74.0	12.6	418.8
Black	23.1	6,077.8	214.5	88.9	802.0

	Offender Rates (per 100,000)				
	Murder	Assault	Sexual Assault	Other Assaults	Robbery
Des Moines					
All	7.8	1,855.8	147.9	27.7	189.7
White	3.2	1,436.6	126.4	24.1	79.1
Black	19.4	7,412.7	473.0	97.2	1,406.1
Columbia					
All	13.3	3,615.6	146.6	47.1	702.0
White	0	1,086.7	61.4	9.0	99.3
Black	29.0	6,686.5	251.2	92.8	1,426.2

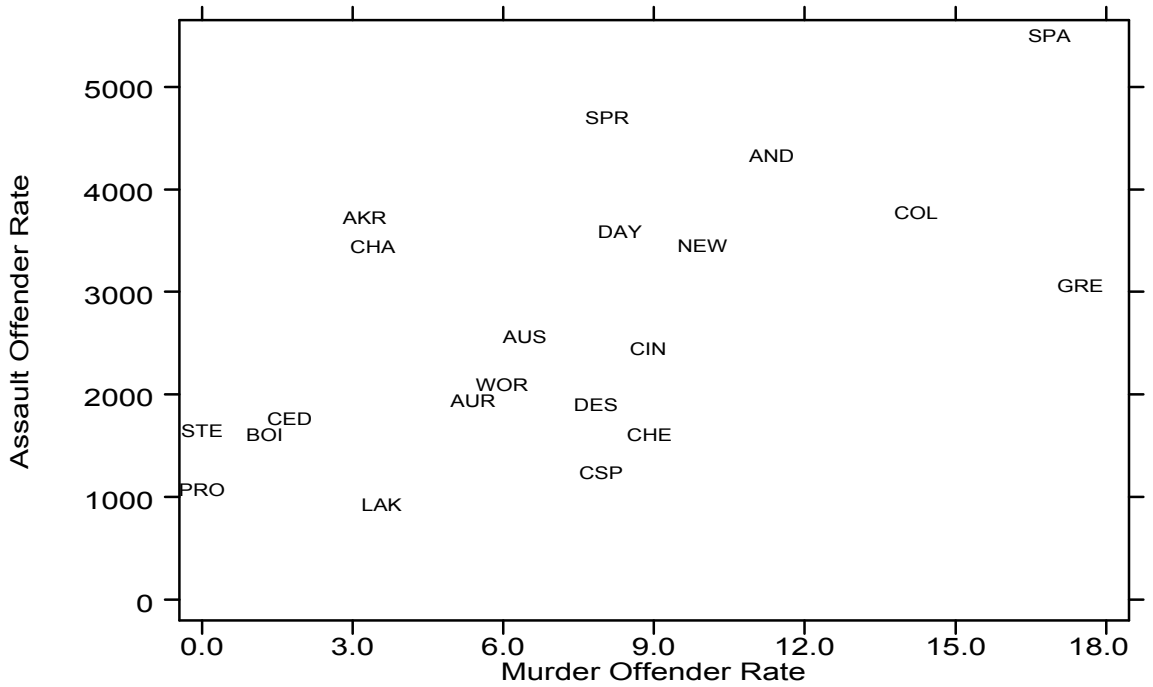

Figure 2. Assault & Murder Rates, 21 Cities

STATE AND CITY DIFFERENCES

In Figure 3, which shows the Black and White murder and assault offender rates of the same set of northern and southern cities used in Figure 2, we see an even less consistent pattern and a more important difference. In this graph, the three-letter city codes show the *Black* murder offender rates and the small triangles spread across the bottom of the graph show the *White* murder offender rates for the same cities. In Greenville (GRE), for example, the Black murder offender rate was over 40 per 100,000 while the White rate was closer to 5.5 per 100,000. Moreover, some of the triangles indicate that the highest Black murder offender rates appear in northern or western cities. The Black murder offender rate for Anderson (AND) is relatively high but its White offender rate is very low. In sharp contrast to Figure 1, this set of city-level offender rates will not support a suggestion that the southern region of the United States has consistently higher homicide offender rates. In general, the Black offender rates are high and the White offender rates are relatively low.

Why do the city level results produce such different outcomes when compared with the state level results? Does some southern code of honor persist only in small towns and rural areas of southern states? Or are the differences shown for Iowa and South Carolina a reflection of the larger Black populations in southern states and the higher assault and murder rates for these populations? In the 2000 census, four of the southern states participating to some degree in NIBRS (South Carolina, Texas, Virginia, and Tennessee) had a combined Black population approaching six million persons. Four of the northern states participating in NIBRS (Iowa, Massachusetts, Michigan, and Ohio) had a combined Black population of just over three million persons.

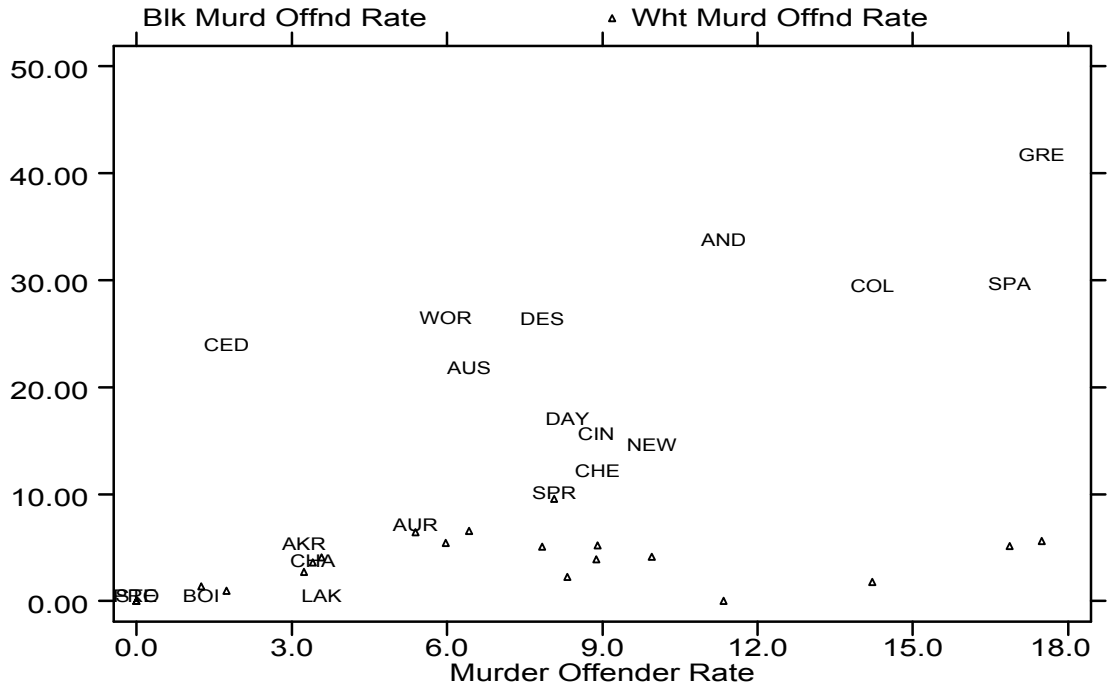

Figure 3. Black & White Murder Rates, 20 Cities

To explore rural-urban differences in homicide rates in South Carolina, the police agencies in the state were divided into four basic categories. Table 5 show the number of murders reported for each group of police agencies. The larger cities (populations over 25,000), with 16 percent of the state's population, reported one quarter of the murders. This gives these cities the highest overall murder rate of 15.3 per 100,000. Only when we look at the White and Black murder offender counts separately do we see that in the great majority of these murder incidents (79 of 93, or 85%), the offender was reported as Black. This produces a relatively low White murder offender rate for these cities (3.9). In fact, the White murder offender rate for each group of agencies is small when compared to a corresponding Black murder offender rate. The highest White rate is for the county agencies (5.1). Small cities and towns had the lowest rate (2.6). This suggests that it is inaccurate to describe homicide in South Carolina as a reflection of the actions of people in small towns and rural areas. The highest Black rates emerge for the larger cities and the highest White rates are produced in the metropolitan counties surrounding the larger cities. But the great differences in the Black and White rates suggest that there is not a single southern culture of violence in South Carolina or that, if there is, it has far more impact on some Black South Carolinians than it has on White South Carolinians.

To my knowledge, NIBRS data have not yet been used to examine other explanations sometimes suggested for the regional differences in murder rates. One approach focuses on the availability of emergency medical services and the quality of medical care available to different populations. For a recent study of the importance of medical care for homicide rates that does not touch on a southern culture of violence see Harris, Thomas, Fisher, and Hirsch (2002). Others have suggested that differences in the availability of medical care produce the regional differences in murder rates. They suggest that what appear to be regional variations in murder are in fact regional variations in the availability of emergency medical services. By extension,

NIBRS might be used to test this explanation for the regional differences and to examine differences between Black and White homicide victim rates. NIBRS includes a measure of the extent of injury reported in non-lethal assaults. Combined with data about the medical facilities available throughout the state, the NIBRS reports may make a test of this hypothesis possible.

Finally, NIBRS can almost certainly be used to explore the possibility that regional differences in gun and alcohol use contribute to the patterns described above. It should be possible to examine the rate at which weapons were used in offenses reported in NIBRS and to look at this in relation to the murder victimization rates in the same cities and states. In addition, as I extend the analysis, it will be possible to look at the relationship of rates of alcohol and other reported drug use to regional variations the murder and assault rates in these 17 states. At this point it seems reasonably clear that alcohol use is reported several times as often as other drug use when a murder is reported. The examination of reports of gun and drug use by region and by race is a logical extension of the work reported here.

CONCLUSIONS

There is little indication of remnants of a White southern code of honor in cities with populations of more than 100,000 persons that provide NIBRS data. Some southern cities have lower White offender murder rates than some northern cities. The fact that the southern states I examined have higher overall murder and assault offender rates than the northern states is, to a large extent, a reflection of the large Black populations in southern states and the higher Black assault and murder rates in these states. If this is the case, any suggestion that the higher overall rates of violence for southern states are the result of a White southern culture of violence will be misleading if not inaccurate.

The high Black offender rates of violence in northern, southern, and western states do not clearly support a widespread "code of the street" but neither do they call it into question. It will take additional qualitative studies in several cities and in the metropolitan counties outside of such cites to determine how plausible this explanation is as a cause of high rates of violent offending. It is possible that the widespread existence of sub-cultural values that are conducive to violent confrontations will explain a large number of murders by Black offenders. It is possible that other cultural, economic, and structural pressures may be involved in the production of the rates presented above. In any case, the continuing high murder, robbery, and assault rates reported for Black offenders in urban areas North and South call for explanation. While Anderson's and Butterfield's focus on the role of respect and revenge remains a plausible explanation for part of the violence, I remain convinced that it is the isolation and exclusion of large segments of the Black population from full participation in the social, political, and economic life of the country that produces both the sub-cultural values and the high levels of lethal and non-lethal violence in some areas of American cities.

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INSTRUMENTALITY AND WOUNDS IN CIVILIAN VERSUS CIVILIAN HOMICIDES IN SAVANNAH: 1896-1903 & 1986-1993

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ABSTRACT

This paper compares the weapons used to commit civilian versus civilian homicides in Savannah for two time periods: 1896 to 1903, and 1986 to 1993. After these data are presented, wound patterns are then examined to see if the total numbers of wounds that cause homicide have changed in 100 years.

INTRODUCTION

An examination of the means by which human beings have been intentionally killed and the cause of death are precursors to an examination of wound patterns. The method by which homicides are committed is called instrumentality. The type of weapon used is important to attorneys involved in the case and to homicide researchers. Prosecutors often cite the type of weapon used as a reason to convict someone of "premeditated" murder. For instance, if the suspect brought an object that was designed as a weapon to the murder scene, the prosecutor could suggest that the homicide was premeditated. On the other hand, if the object at the scene, such as a flower vase, was used to murder the victim, the defense attorney may argue that the homicide was not planned. This paper compares civilian homicides (excluding accidental deaths) in Savannah, Georgia, occurring during 1896 to 1903 and 1986 to 1993.

Death Certification

To complete a death certification, a modern pathologist must determine the cause, mechanism, and manner of death. The cause of death is the injury that has actually brought about the death of the individual. If a victim is stabbed and dies two weeks later of an infection in the abdomen, the underlying cause of death would have been the stab wound. The mechanism of death may refer to a sequence of physical events or to pathophysiologic changes in the individual that led to his death. For instance, ventricular fibrillation can be caused by a coronary disease or by electrocution, but the effect on the body is similar. The manner of death may be classified as homicidal, accidental, suicidal, or natural. The manner of death may be the most controversial decision the pathologist makes (Wetli, Mittleman, Rao, 1988)

According to Allen (1986), criminologists (criminalists) assess the extent of physical harm resulting in a violent crime in three ways: (a) determining whether the victim requires hospitalization; (b) identifying the location and number of wounds the victim suffered; and (c) if a firearm was used, combining the firearm caliber and location of wounds to assess the overall injury. Allen chastises these criminologists in confusing the concept of injury. "An injury is the '...deformation of tissues beyond their failure limits, resulting in damage of anatomic structures

or alteration in function' (Committee on Trauma Research, 1985)" (p. 142). Allen feels that criminologists have tried to mix various schemes of classification, which does not make sense. He suggests using the Abbreviated Injury Scale (AIS) developed by the American Medical Association to classify automobile injuries. The two challenges in doing this are that most of the death-causing wounds are penetrating objects (bullet or knife blade) and medical personnel dealing with aggravated assaults and homicides would have to utilize the AIS.

Instrumentality

This study investigated five types of causes of death: gunshot wounds, incised wounds, blunt trauma, asphyxia, and explosion. Gunshot wounds, incised wounds (cutting), and blunt trauma constituted all causes of death from 1896 to 1903. From 1986 to 1993, there were six homicides by asphyxiation and one by explosion. A short discussion of each of the five methods of homicide follows, including the advantages and disadvantages of each from the perpetrator's perspective. Asphyxia and explosion are presented first because they are so rare.

Asphyxia

A total of nine homicides caused by asphyxia were encountered in this study. According to Spitz and Fisher (1980), asphyxia falls into four categories. Three of these categories were encountered in this data. These were compression of the neck, obstructing the airway, and exclusion of oxygen. Six of the asphyxia deaths were committed by males and three of the perpetrators were never identified.

Compression of the neck can occur manually (with hands) or with a ligature, such as a rope or wire. Four female victims of this type of asphyxia were killed in the following ways. Three were killed by the hands of the perpetrators. The fourth female victim died when a scarf was used a ligature around her neck.

Five victims were killed by an exclusion of oxygen. A female victim had a pair of panties in her throat and a male victim had a sweater tied across his mouth, after receiving a severe beating. A female victim was first smothered with a pillow, while bound, and then stabbed ten times in an attempt to confuse the investigators. A female victim was suffocated by unknown means. One male victim, an infant, died when from an exclusion of oxygen from an intentionally set fire.

The only advantage to asphyxiation is that many times there is no blood transfer (between perpetrator and victim) and that it can be performed without a weapon. The disadvantage is that usually the victim must be smaller and weaker than the attacker for him to have any real chance at success. A skillful person, who is well trained, can strangle a victim very efficiently. These types of strangulations are not occurring in Savannah.

Explosion

While “explosion” is not a scientific category because death may result from, for example, shock or loss of blood, it is sufficient to dispose of the one incident in the data. The male victim opened a package containing a pipe bomb.

The advantage of using an explosive device is that the perpetrator does not have to see the victim and can be separated from the crime by time and distance. The disadvantage is that many components of explosives are traceable and an unintended victim can set the explosive device off. If the bomber attempts the crime more than once, he usually establishes a pattern that becomes a “signature” to those who investigate these types of homicides.

Firearms

Firearms, in general, are largely made of metal and fire a projectile that is powered by gunpowder. Firearms are generally broken down into three categories: rifles, shotguns, and handguns. Rifles and shotguns are shoulder mounted weapons and come in a variety of types. Handguns are divided into the category of revolvers and semi-automatics.

The majority of firearms that were used in homicides in Savannah, when identified, were handguns. In the era from 1896 to 1903, only revolvers had been well developed. They had been in existence long enough to be widely available. A revolver has a cylinder and usually holds five or six cartridges. A double-action revolver, which most were, would raise the hammer as the trigger was pulled and the cylinder would rotate. The hammer would then strike an unfired cartridge. In the era from 1986 to 1993, both revolvers and semi-automatics were used. Semi-automatics are pistols that actually fire semi-automatically. This means that every time the trigger is pulled, the hammer falls on a cartridge that is fed from a magazine, and the cartridge is then "automatically" ejected, and a live round is substituted in the chamber.

The bullet from a firearm causes damage by its impact on the body and subsequent destruction of body material. It is almost impossible to predict what type of damage will be done because of a number of factors: size and power of cartridge, distance from shooter to victim, direction the bullet hits the body, point of entrance to the body, the direction the bullet takes within the body, and size, shape, and composition of the bullet. The trajectory of the bullet, which is governed by laws of physics, can have high predictability until it actually enters the body. The amount and density of muscle tissue, the size of the person, and the posture at the time of impact affect the outcome. The differential combination of these factors yields even greater variability or possible outcomes. If a bullet hits a bone, it may be deflected out of the body, may follow the bone to its final resting place, or break the bone as it penetrates. Moreover, the bullet can cause damage in a number of ways. First, it can destroy body tissue. It can also sever arteries, puncture vital organs (heart, brain), and, if powerful enough, produce an exit wound that pulls blood and tissue outside of the body. One victim shot with a .9mm handgun 24 times walked out of the hospital a week later. Others shot once with a puny .22 handgun have died immediately. Of all the factors affecting the lethality of the bullet, placement is the most important.

While firearms have been improved in the last 90 years, some of the attendant technological advances may be irrelevant to homicide. For instance, if handguns with higher magazine capacities are not used as murder weapons, or if they are used, but only when three or four shots contained in the magazine are fired, the added "firepower" is meaningless.

There are a number of challenges the investigator may encounter involving deaths by firearms. It should also be noted that the cause of death may vary, even when the same weapon is used. A victim can be shot in the heart and die immediately or shot in the leg, hitting the femoral artery, and bleed to death slowly. Homicide detectives must answer four questions when investigating death from gunshots:

1. Was death due to a gunshot wound or to an injury by some other instrument?
2. If by a gunshot wound, from what distance was the firearm discharged?
3. From what direction were the shots fired and what was the position of the body when hit?
4. Was it an accident, suicide, or murder?

Many homicide researchers have no familiarity with firearms. This has been problematic when it comes to precise measurement of the use of firearms in violent crime. On the other hand, criminalists have specific training in this area. Gunshot residue, the projectile, and cartridge can provide vital information. Gunshot residue can include decomposed primer, propellant, projectile coating, projectile, and traces of what was in the gun barrel. The projectile shot from a firearm with rifling (one that has lands and grooves, producing striations on the projectile) will, like a fingerprint, yield a unique signature. The cartridge case contains a headstamp on the bottom that includes the caliber and manufacturer. In some cases, the indentation of the firing pin on the cartridge's primer may reveal the type of firearm used. If the gun is recovered, the firing pin and ejector marks on the cartridge can be matched (Wrobel, Millar, & Kijek (1998). In some cases, fingerprints that were on the cartridge cases that were fired can be discovered, though on an inconsistent basis (Migron, Hocherman, Springer, Almog, & Mandler 1998). The Bureau of Alcohol, Tobacco and Firearms has recently deployed investigative equipment that can identify the type of firearm that has been fired by using the empty cartridge case, if that case has been automatically ejected. The following are some challenging areas:

Shotguns: Shotguns may be the most lethal firearm used in homicides in America. Most murders are committed at close range which means that the full force of the shotgun blast is taken by the victim. Shotguns can be loaded with a slug (which is one large projectile) or with shot (lead spheres). The size of the shot determine how many can be loaded in each caliber of shotgun shell. These go from the largest type of double 0 buckshot to #9 birdshot. Many physicians who are unfamiliar with shot size refer to all shot as "buckshot" (called this because deer hunters use it). If the researcher knew the size of shot used on the victim, he may be able to make some scientific calculations about how many times the shotgun was fired. For example, if the autopsy report says that there were 16 pellets in the body, this may mean the victim was shot once with #9 shot or three times with double 0 shot. If the shot is identified correctly and has impacted the victim in different patterns, the distance could be estimated. This is especially true if the gun has been recovered and the type of choke (the amount of spread the barrel has been made to give to the pellets) is known.

Handguns: A major problem is if a .357 Magnum revolver has been identified as the murder weapon, many researchers record that the victim has been killed by a .357 Magnum bullet. This is not necessarily so. A .357 Magnum can shoot both .357 cartridges and .38 special cartridges. The converse is not true. A .38 special revolver cannot shoot .357 Magnums. The cartridges must be examined. Even when bullets are retrieved from the victim, most .38s are indistinguishable from .357 Magnum bullets. To further confuse the subject, there are now some automatic pistols that shoot these cartridges. A .357 Magnum cartridge is more powerful than a .38.

Cartridges: Even when an investigator has the spent cartridges, he cannot be sure that they have been loaded consistently with the headstamp. The headstamp on the bottom of the cartridge case usually identifies manufacturer and caliber. Much of the ammunition used in the United States has been reloaded using used cartridge cases.

It is not just academics who have difficulty in dealing with firearms related issues. Collins and Lantz (1994) evaluated the amount and type of misinterpretation of gunshot wounds (GSW) at a hospital trauma. They wanted to ascertain mistakes made by the trauma specialists (TS). They had a total of 271 gunshot wound deaths, but eliminated those where the projectile did not leave the body. This left 125 fatalities of which 46 had records of treatment by a trauma specialist. The researchers said:

> A total of 15 erroneous interpretations involved the number of projectiles, while 16 misinterpretations involved entrance and/or exit wound determinations. In seven cases (29%), a compounded error occurred where the TS incorrectly recognized the qualitative aspects of the wounds or made an inaccurate assessment of the number of GSW's causing magnification of error. (p. 96)

It should be noted that surgeons, just like police officers who arrive at a crime scene, have as their first duty, the preservation of life. If a wounded person is brought to the emergency room, the surgeon will not be worried about how the assault occurred but in preserving the victim's life. An entrance/exit wound will be deformed when a surgeon begins to probe for the bullet. This is not to say that each group--police, researchers, and surgeons--cannot do better.

Firearms offer a number of advantages to the perpetrator over other instrumentalities. The first advantage is that the extent of the wound that a firearm generates is independent of the perpetrator's size, strength, or physical condition. The second is that the suspect can fire this weapon at some distance from the victim. A third advantage is that most firearms allow the shooter to fire more than one shot rapidly, thus increasing the chance of disabling the victim.

A chief disadvantage of firearms is that the illegal possession of them is punishable by law. A convicted felon is not allowed to own any firearm and this is usually a reason to revoke parole or probation. A second disadvantage is that when a firearm is used, it may be traced back to the shooter. Currently, all modern firearms must have a serial number affixed to their frame. Third, the shooter will have unburned powder on his hand and ballistics can be used to trace the bullet back to the gun from which it was fired. The fourth disadvantage is in the carrying of it. If

one is carrying it concealed, it can be problematic to do it on a daily basis, especially in warm climates. The last disadvantage is the loud noise generated by a firearm discharge.

Incised Wounds

Spitz and Fisher (1980) define a cut as a wound that is longer than it is deep and a stab that is deeper than it is long. Knives are the primary weapon used to cause incised wounds. Stabbing is where the knife enters the body and penetrates a vital organ. The victim can bleed to death internally. A cutting wound is where the knife blade is dragged along the body and a slash can be seen. Many victims of knife attacks may be covered with blood, but with superficial knife wounds. They have only penetrated the first layers of skin. Other slashes that are deeper and directed can be fatal. Knives can also have blades that are rusty or have been used in such a way that they cause fatal infection in the victim.

Knives have a number of advantages. First, they are very concealable because they are so flat. Second, they do not have to be reloaded to continue the attack. Third, they can be found in any kitchen or any home. Fourth, the sale of knives are basically unrestricted and they have no serial numbers. The disadvantages of knives is that the perpetrator will have to be within arm's length of the victim to make contact. Second, modern forensics can identify the knife type and thrust, based on the wound and there will be blood on the actual weapon. In many cases, this blood will be transferred to the perpetrator. Third, depending on the defensive capabilities of the victim, the perpetrator may need some skill to carry out his attack.

Blunt Trauma

Spitz and Fisher (1980) include tears, shears, and crushes in blunt force injury. Blunt trauma can be caused by an object (metal bar, vase, etc.), hands, or feet.

The advantage of blunt trauma as a weapon is that hands and feet are always available and usually there is some object that can be picked up and used wherever the attacker is. The disadvantage is that the use of blunt trauma relies a great deal on the strength and fury of the perpetrator. A second disadvantage is that you must be close to the person and blood may be transferred to the object that struck the victim. The third disadvantage is that the victim may be able to survive the attack and do the perpetrator harm (especially if the victim is armed with a gun or knife).

Blunt trauma that has historically killed is that which causes a skull fracture. This is usually caused when a perpetrator hits the victim in the head with an object. Sometimes, if the victim is on the ground, and the perpetrator kicks his head, a skull fracture will result. A punch usually does not initially cause a skull fracture, unless the injury results from the head hitting the floor or another object as the victim falls.

TABLE 1. Instrumentality of Savannah Homicides, 1896-1903 and 1986-1993

VICTIMS

Suspects	BLACK MALE 1896-1903	BLACK MALE 1986-1993	BLACK FEMALE 1896-1903	BLACK FEMALE 1986-1993	WHITE MALE 1896-1903	WHITE MALE 1986-1993	WHITE FEMALE 1896-1903	WHITE FEMALE 1986-1993
BLACK MALE	43 (43%) 24 GSW 12 IW 7 BT	133 (56%) 104 GSW 16 IW 12 BT 1 A/S	14 (14%) 7 GSW 3 IW 4BT	28 (12%) 14 GSW 8 IW 4 BT 2 A/S	7 (7%) 4 GSW 3 BT	15 (6%) 11 GSW 1 IW 2 BT 1 A/S	0 (0%)	6 (3%) 1 GSW 2 IW 1 BT 2 A/S
BLACK FEMALE	3 (3%) 1 GSW 2 IW	15 (6%) 5 GSW 9 IW 1 BT	5 (5%) 4 IW 1 BT	6 (3%) 2 GSW 3 IW 1 BT	0 (0%)	0 (0%)	0 (0%)	0 (0%)
WHITE MALE	8 (8%) 7 GSW 1 IW	7 (3%) 6 GSW 1 EXP	0 (0%)	0 (0%)	14 (14%) 8 GSW 4 IW 2 BT	7 (3%) 3 GSW 4 BT	2 (2%) 2 GSW	3 (1%) 1 GSW 1 IW 1 BT
WHITE FEMALE	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (1%) 1 GSW	0 (0%)	0 (0%)	0 (0%)
UNKNOWN	3 (3%) 2 GSW 1 BT	10 (4%) 10 GSW	0 (0%)	6 (3%) 1 GSW 1 IW 1 BT 3 A/S	1 (1%) 1 BT	2 (1%) 2 GSW	0 (0%)	1 (0%) 1 GSW
TOTAL	57 (57%) 34 GSW 15 IW 8 BT	165 (68%) 125 GSW 25 IW 13 BT 1 A/S 1 EXP	19 (19%) 7 GSW 7 IW 5 BT	40 (19%) 17 GSW 12 IW 6 BT 5 A/S	23 (23%) 13 GSW 4 IW 6 BT	24 (10%) 16 GSW 1 IW 6 BT 1 A/S	2 (2%) 2 GSW	10 (4%) 3 GSW 3 IW 2 BT 2 A/S

NOTE 1: 101 civilian-versus civilian homicides occurred during 1896 to 1903. 241 civilian-versus-civilian homicides occurred during 1986 to 1993. 237 of these homicides are represented above; the two homicides not included involved gunshot wounds; an Hispanic male killing a Black male, and a Black male killing an Asian male.

NOTE 2: GSW = gunshot wound; IW = incised wound; BT = blunt trauma; A/S = asphyxiated/strangled.

Medical Care

That medical care has vastly improved over the last 90 years no doubt impacts the outcome of many violent assaults. The speed with which emergency medical units arrive on the scene, their competency, the speed of transport to a hospital, the modern techniques of surgery, and the post-trauma care given have all improved greatly. It is impossible to speculate precisely how high the homicide rate would be in Savannah from 1986 to 1993 if those victims of aggravated assault had been treated by the medical community of 1900. Grossman (1995) quotes James Q. Wilson as saying that if trauma care was the same as it was in 1957, the murder rate would be three times as high. Who can estimate the difference of 90 years?

Specificity of Weapon Used

This section examines the weapons used with more specificity. This is done to postulate if there is a difference in the type of weapon used within the categories of firearms, incised weapons, and those causing blunt trauma.

Firearms

Table 2 illustrates the type of firearms used in homicides in Savannah from 1896 to 1903. Of the 101 civilian homicides committed in the earlier era, 56 were by firearm. Of these 56, 49 were specifically identified as a revolver. It must be remembered that most modern handguns at this time were revolvers. In addition, some of these may have been old "cap and ball" revolvers. Revolvers that chambered fully loaded cartridges were first widely marketed in the 1870s.

TABLE 2. Citizen Versus Citizen Homicide Victims Type Of Firearm Used 1896-1903

	VICTIMS			
FIREARMS	B/M	W/M	B/F	W/F
Gun	4	0	0	0
Revolver	21	9	4	1
.32 revolver	3	2	1	0
.38 revolver	3	1	1	0
.44/.45 revolver	0	1	1	1
Shotgun	2	0	0	0
TOTAL	34	13	7	2

Table 3 illustrates the type of firearms used in homicides in Savannah in the later era. Of the 161 homicides by firearm, 127 were specifically mentioned as a handgun. The above handguns were grouped in three classes by caliber, instead of by revolver or semi-automatic. A sizeable majority of the handguns used were revolvers.

TABLE 3. Civilian Versus Civilian Homicide Type Of Firearm Used 1986-1993

	VICTIMS			
FIREARMS	B/M	W/M	B/F	W/F
Gun	10	2	0	1
Handgun (HG)	1	0	0	0
.22, .25, .32 HG	37	4	5	0
.380, 9mm, .38, .357, HG	55	8	10	2
.40, .44, .45, .10mm, HG	2	0	1	0
Rifle	6	1	0	0
Shotgun	14	1	1	0
TOTAL	125	16	17	3

Wounding Patterns

Wounding patterns are of interest for a number of reasons. First, as criminal investigators, we can learn much about the method in which the homicide was committed, which assists the prosecutor in preparing for trial. Those agencies, with a behavioral science unit, like the FBI, use wound patterns at part of their overall profiling procedure. Second, those doing research on homicide can also try to establish certain relationships based on the type, number, and position of wounds.

This may also be an area where we can get a clearer understanding of the extent of the improvement in medical care and its effect on homicide. If we had exact data from two different time periods on all aggravated assaults and homicides, we could examine those wounds that caused death and those that were treated successfully by physicians. We could then try to discern how much difference in homicide rates is due to improved life-saving by health care professionals.

Challenges in Interpreting Wounding Patterns

Unfortunately, knowing the number, type, and position of wounds does not always tell us as much as we think it should about homicide. If there is more than one wound, we may identify the wound that caused death, but in a number of cases with multiple wounds, more than one is lethal.

Anthropologists Rhine and Curran (1989) examined an old skull that had multiple gunshot wounds. Not only were they able to identify entrances, exits, and trajectory, but they were also able to determine the sequence of bullet impact. This was possible because a bullet hitting a hard and large surface, like the skull, produces a fracture. A fracture that stops at another fracture must have been done later. This is the same principle used when police officers find two bullet holes in a window. They can easily tell which one was caused by the first bullet.

There are a few things that can be determined from wounding patterns. First, is there any difference between wounds in the earlier era and the later era, when similar weapons are used? Second, are there certain types of wounds that are common in specific types of homicide? Third, are there wounds that caused death in the past, that do not cause death in the modern era, possibly because of medical treatment?

Number of Shots/Hits

These data from both eras is problematic because the number of shots may have been determined by the statements of witnesses and/or suspects, the number of empty cartridges found in the revolver, the number of empty cartridges found at the scene (semi-automatic), and other measurements.

As mentioned before, even modern pathologists have problems determining entry and exit wounds. One example of this occurred in the modern era. The two perpetrators acted out a scene from the *film noir* classic, *The Killers* (whether by accident or by design). In this film, Burt Lancaster plays the Swede, who double-crossed the members of his gang. He started a new life and then heard that two gunmen were in town looking for him. Instead of leaving town, he stayed in his room, waiting to be killed. The two gunmen kicked open his door, pulled out six-shot revolvers and emptied them into him. The real-life Savannah event occurred as follows:

The victim was in his house, high on drugs. The two unknown gunmen entered, each carrying a .38 caliber revolver. They emptied their guns into him and left. He was a drug dealer, and the police, after a thorough search of the house, found cocaine, heroin, penicillin V, and naproxen. The victim's unfired gun was found next to him. The rumor floated that the victim owed money on a drug deal and was going to talk to the police, which prompted a murder contract. The medical examiner counted 13 entry wounds on the body. He either had not seen the movie or counted an exit wound as an entry wound.

Another confounding element is when the subject fired at a number of people and only one died and when he fired at the murder victim, and missed because of poor marksmanship. There were few cases of this and they were quantified as accurate for hits on the murder victim

and any misses were also attributed for missing the murder victim. The following example occurred in the early era:

A drunken husband came home and got into verbal conflict with his wife. Another woman, who lived in the same house had just come in with her husband. The perpetrator fired twice into his wife's hand and she ran out of the room screaming. She ran into the other couple's room and hid in the closet. Her husband followed and seeing the outline of a woman in the dark, fired twice, killing her. He then realized it was not his wife and shot into the closet, hitting his wife in the breast.

The real target of the husband's anger was his wife, who ended up wounded. The inadvertent victim just happened to be there. This case, while unusual, was counted as two shots and two hits on the victim.

In the earlier era, of the 56 incidents where the murder weapon was a firearm, there were 8 (14%) incidents that did not have an estimation of both shots and hits. This subgroup included 3 cases with 1 hit, 2 cases with 2 hits, 2 cases with 3 hits, 1 case with 2 shots and unknown hits. In the 48 remaining cases there were 99 shots and 72 hits. This means that the average number of shots per incident was 2.02 and the average number of hits was 1.5.

In the later era, of the 159 incidents in which the murder weapon was a firearm, 34 (21%) incidents did not have an estimation of both shots and hits. This subgroup included 12 cases with 1 hit, 8 with 2 hits, 6 with 3 hits, 1 with 4 hits, 1 with 8 hits, 2 with an unknown number of hits, and 3 only identified as a "gun" death. In the 115 remaining cases there were 347 shots and 247 hits. This means that the average number of shots per incident was 3.01 and the average number of hits was 2.15.

Blackman (1997), in his article discussing validity and reliability problems in homicide research and conducted under the rubric of "epidemiology studies" makes the following comment:

> Most shooting involve small numbers of rounds per firearm (Police Academy Firearms and Tactics Section, 1994, p.9) and small numbers of entry wounds (Hutson, Anglin, & Pratts, 1994; Kellermann et al., 1996; Ordog, Wasserberger, Balasubramanium, & Shoemaker, 1994; Webster, Champion, Gainer, & Sykes, 1992), so that, despite reported increases in the number of such wounds (Webster et al., 1992), there is no credible evidence that changes in ammunition-feeding mechanisms or firearm magazine capacity are factors in the amount of severity of violence or injury. Criminological research confirms that magazine capacity is not yet a factor even in multiple shootings (Etten & Pettee, 1995). (p. 175-176)

Incised Wounds

From 1896 to 1903, 27 (26%) of the civilian homicide victims died of incised wounds, compared with 41 (17%) for the 1986 to 1993. Table 4 lists the number of wounds that were incised on each victim.

Of the 27 deaths attributed to incised wounds in the earlier era, 22 were done with knives. The other 5 were accomplished with 1 ax, 1 razor, 1 ordinary table fork, 1 crowbar, and 1 woodsaw. Fifteen of the knife deaths were the result of 1 cut/stab, 1 with 2 cuts/stabs, 4 with 3 cuts/stabs, 2 with 4 cuts/stabs, and 1 each with 5, 6, and 16 cuts/stabs.

TABLE 4. Incised Wounds by Knives and Other Cutting Implements

# of wounds	1896-1903	1986-1993
1	15	16
2	1	6
3	4	4
4	2	0
5	1	2
6	1	2
8	0	2
at least 10	0	4
14	0	2
17	0	1
36	0	1
73	0	1
TOTAL	26	41

It should be noted that 5 of the 26 incised deaths in the earlier era were caused by sharpened implements other than knives. Two were caused by straight razors (throats cut), 1 was caused by an ordinary table fork, 1 was caused by a crowbar, and 1 was caused by a wood saw on a victim's arm that lead to an infection. These five are all in the 1 stab category. All 41 of the incised wounds in the later era involved knives.

In the era from 1896 to 1903, there were 26 incised deaths with a total of 48 cuts/stabs, which is an average of 1.85 per death. In the era from 1986 to 1993, there were 41 incised deaths with a total of 272 cuts/stabs, which is an average of 6.6 per death. If we exclude the two cases that were torture killings the average is 4.2 per death.

Blunt Trauma

In the era 1896 to 1903, 19 deaths were caused by blunt trauma. In the era from 1986 to 1993, 27 deaths were caused by blunt trauma.

In the earlier era, two blunt trauma deaths were not applicable to calculating the number of blows that caused death. One death was caused when a child was hit by a trolley car and one death was of an infant who had numerous blows. Of the 17 deaths remaining, a total of 26 blows were noted. This is 1.5 blows per death.

In the later era, six blunt traumas were excluded. Four involved infants and two involved corpses that had decomposed to the point that only the cause of death could be ascertained. Of the 21 cases left, there were a total of 74 blows. This averages to 3.5 blows per death.

CONCLUSION

It would seem that, based on the above data, medical care has had some positive effect on reducing homicides between the two eras. There was an increase in the use of firearms during the second era, primarily because firearms usage is endemic to the illegal drug trade. The caliber of the handguns may have increased somewhat and modern powder increased the velocity of some rounds. In addition, in those cases where homicide resulted from gunshot wounds, incised wounds, or blunt trauma, there was a substantial increase in the number of wounds to cause death between the two eras.

One set of data that is impossible to collect is how many victims of an aggravated assault were treated with calculable wounds in both eras and recovered from these wounds. This would certainly provide a more definitive picture of the increased importance of medical care.

It also seems that the murder rate for Savannah would have been lower for the modern era if it were not for the drug trade, which in 1991 gave the Savannah metropolitan area the second highest metropolitan-area murder rate in the nation. Among Black males, it could be said that the murder rate per capita was almost the same. It is possible that the increased efficacy of medical care nullified the deadly effects of being involved with illegal drugs.

The next level of research in this area is to examine the actual wound patterns of each homicidal assault. This examination would provide more insight into medical aid. It may also provide some patterns that have commonality with certain types of homicides.

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CRIME DECLINE IN CONTEXT[1]

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ABSTRACT

Homicide rates in the United States have dropped substantially over the past decade, and most of that decline has occurred in the firearm category. This paper reviews recent trends in gun and non-gun homicide rates, by age, race, and sex. Attention is then turned to other indicators of firearm possession and use (victimization and ownership surveys, gun assaults, gun suicides) to determine whether the homicide drop is consistent with--and perhaps the product of--a broader decline in firearm use.

INTRODUCTION

After rising to a peak in the early 1990s, crime rates in the United States have been falling for almost a decade. The turnaround was sudden, unexpected, and years later remains something of a puzzle. Some observers attribute most of the drop to tougher sentences and rising rates of imprisonment. Others believe more vigilant policing of loitering, public drunkenness, and other so-called quality-of-life offenses is responsible. Still others point to shrinking drug markets or the booming economy of the 1990s. No consensus exists among "the experts" regarding the sources of the crime drop.

Even if we cannot say with certainty what is responsible for the crime decline of the 1990s, it is possible to rule out some of the usual suspects and identify some of the real perpetrators in the crime drop. But the first step in unraveling the mystery of the crime decline is to determine whether it happened at all.

DID IT HAPPEN?

Several years after the crime decline began, most Americans continued to rank crime among the nation's most serious public problems and to believe that crime rates were still going up. A relatively small percentage of Americans have direct experience with serious crime. The primary source of public information about crime is the mass media. Given the constant media drumbeat of murder and mayhem, it is not surprising that people would be unaware or skeptical of claims that crime rates were dropping. But they were and still are.

The crime decline is *real*; it is not an artifact of changes in the rate at which crimes are reported to or recorded by the police. It is *significant*; it is long and deep enough to qualify as a trend and not just a short-run statistical squiggle. It is pervasive; it cuts across major offense

categories and population groups. Finally, it is time-limited. The rates cannot go negative, and so some flattening out of the decline should be expected in the coming years. And it is possible, of course, that crime rates will increase, as they did in the 1980s. Predicting the future is always hazardous, but the best guesses about the likely course of crime over the next decade will be based on an informed and reasoned assessment of the recent past.

DOCUMENTING THE DECLINE

A "crime rate" is the number of offenses of a specified type divided by the population of some jurisdiction. By taking population size into account, crime rates can be compared across places and times with different populations. The nation has two "official" crime rates. One consists of offenses known to the police, which are compiled in the FBI's Uniform Crime Reports (UCR). The other is based on the reports by victims to the National Crime Victimization Survey (NCVS). Both of the crime indicators include information on serious violent and property offenses, such as assault, rape, robbery, burglary, and auto theft. The UCR also records homicides that can not be counted in victim surveys. Both the UCR and the NCVS are limited to so-called street crimes and omit serious white-collar, corporate, and governmental offenses (e.g., price-fixing, violations of workplace safety rules, pollution, corruption, anti-trust violations, false advertising). National indicators for such "suite" crimes do not exist, so no one knows whether they have been rising or falling.

The UCR statistics indicate that street crime has substantially decreased over the past decade. In 1991, the FBI counted 24,700 criminal homicides in the US, or 9.8 homicides for every 100,000 Americans. By the end of 1999 the number of homicides had dropped to 15,500, and the rate fell to 5.7 per 100,000, a 42% decline. The nation's robbery rate also fell by about 40%, and the burglary rate dropped by a third during the 1990s. The decreases were less steep, but still appreciable, for rape and aggravated assault (assaults involving serious injury or the use of a weapon), both of which declined by about 20%. There is some reason to believe that the declines in non-lethal violence are even sharper than those reported in the UCR because victims became bolder about reporting such incidents to the police and the police recorded more of them. However, the drop registered in the UCR police statistics is mirrored in NCVS survey results that are unaffected by patterns in reporting and recording.

So the declines in crime are real, but are they meaningful? The simple answer is yes. By the year 2000, homicide and burglary rates were lower than at any time since the middle 1960s. Victimization rates have fallen for youth as well as adults, Blacks as well as Whites, both males and females, in large cities and rural areas, in every region of the country. But the timing and magnitude of these changes differ across population groups, and those differences offer important clues regarding the causes of the crime decline.

Consider the difference in the timing of the decrease in youth and in adult homicide victims. The victimization rates for persons over the age of 24 have fallen more or less continuously since 1980. On the other hand, youth homicide followed a more cyclical pattern, falling during the early 1980s, rising from the mid-'80s to a peak in 1993, and then falling again since then. The increase in youth homicide during the 1980s and early '90s was so dramatic it gave rise to concerns about a national youth violence "epidemic." The victimization rate for 14-

17-year-olds nearly tripled and that for 18-24 year-olds almost doubled between 1984 and 1993. The fall from the 1993 peak in youth homicide has been equally pronounced. The trends in the rates at which teenagers and young adults committed homicide were almost identical to the victimization trends.

I focus on criminal homicide in this discussion because more accurate and detailed information about the characteristics of victims and offenders exists for homicide than other crimes, and because it is the most serious. However, the same basic patterns also characterize serious non-lethal criminal violence.

A credible explanation of the homicide decline, then, must also explain why the time trends were different for adult and youth homicides, the first dropping steadily since 1980, the second fluctuating. Another notable pattern in the homicide drop involves the differing time trends for offenses committed with and without firearms. Roughly two-thirds of homicides in the U.S. are committed with a gun. Both the increase in youth homicide during the 1980s and early 1990s, and the decrease over the last several years are restricted largely to the firearm category. Youth homicides involving other weapons or no weapons exhibit a gradual downward shift over the past 20 years, and adult homicide rates have decreased in both the firearm and non-firearm categories. The "action" then in the national homicide rate for the last two decades is a consequence of rising and falling rates of youths killing and being killed with guns. A sufficient explanation of recent homicide trends cannot ignore the prominent role of guns in the cycle of youth violence.

The cycling up and down in youth firearm violence occurred earliest and was most pronounced in the largest cities, and among young African American males. The same changes happened in smaller cities and among White teenagers and young adults, but happened a year or two later and the fluctuations were smaller. (Persons of "other races" constitute about 2-3 % of the nation's homicide victims; Latinos may be of any race). A sufficient explanation of the recent homicide trends should accommodate these race, sex, and city-size differences as well.

To pass muster, an explanation of the crime drop should account for why the trends differ for youth and adults, and why they are most evident in firearm homicides, in the large cities, and among young Black men. The better explanations should account for both the rise and the decline in crime rates since the 1980s. And the best explanation will connect those recent changes to longer-term trends and to the social conditions that make the U.S. the murder capital of the industrial world, the crime decline notwithstanding.

DRUG MARKETS AND THE SPREAD OF FIREARMS

No single explanation of the crime decline has been proposed that meets all of these conditions. One of the more promising, however, attributes the run-up in youth homicide rates beginning in the mid-1980s to the diffusion of violence in and around urban crack markets. The high demand for crack led drug dealers to recruit young inner-city males as sellers and arm them to fend off attacks from rival dealers and protect themselves from street robbers (Blumstein & Rosenfeld, 1998). A classic arms race resulted as other young people acquired guns in an increasingly threatening urban environment. The diffusion of firearms fueled escalating rates of

youth homicide, with the sharpest increases occurring in the largest cities where the crack epidemic began. The increases in youth homicide, in turn, drove up the total homicide rate.

If this explanation of the increase also applies to the homicide decline, the turning point and drop in youth homicide should have been preceded by corresponding changes in the urban crack markets. That is exactly what happened. The crack epidemic crested around 1990 and the drug markets began to shrink, the process occurring first in the largest cities. The firearm-diffusion hypothesis squares with most of the basic facts underlying the crime decline. It accounts for why the drop occurred in the larger cities before the smaller ones, why it has been concentrated among African Americans, and why it has involved firearms. (Drug dealers do not use fists, sticks, or knives to settle disputes.) Most importantly, it highlights the changes among adolescents and young adults, and thereby situates the crime decline of the 1990s in the context of earlier increases.

WHAT ABOUT THE ADULTS?

The firearm-diffusion story does not explain everything we should want to know about the crime decline. It is silent on the long-term decrease in homicide among adults. What little we know about that decline suggests it is driven in part by a marked decrease in "intimate partner" homicides--killings involving husbands, wives, boyfriends, and girlfriends--and in part by the explosive increase in incarceration since 1980. But neither of these factors explains the adult homicide decline in its entirety, and the reduction in intimate partner homicide itself requires explanation.

Recent research suggests that plummeting marriage rates and the growth of hotlines, shelters, legal advocacy, and other domestic violence prevention resources have contributed to the drop in intimate killings. One study found the greatest declines in intimate homicides over the last 25 years in cities with the largest drops in marriage rates, the largest increases in divorce rates, and the most rapid growth in shelters and legal advocacy programs for domestic violence victims (Dugan, Nagin, & Rosenfeld, 1999). Interestingly, the biggest homicide drops occurred in the rate women kill their husbands or boyfriends and not, as we might expect, in the rate women are killed by their male partners. Why might this be the case? The researchers speculate that domestic violence programs, by offering women a non-violent means of escaping abusive relationships, make it less likely they will have to kill their way out. However, because they are designed to assist women, the growth in prevention programs should have little effect on men's behavior. Although interesting, such speculations remain just that. In general, criminologists know even less about the causes of the 20-year adult homicide drop than about the youth homicide epidemic.

CRIMINAL JUSTICE, THE ECONOMY, AND FIREARMS POLICY

Even allowing for some lag between shrinking drug markets and falling rates of youth firearm violence, the crime decline is far longer and deeper than can be explained by the waning of the crack epidemic alone. It seems certain that other factors are at work, and there is no lack of alternative explanations, some of which are truly inspired. For example, economists Steven Levitt and John Donahue have proposed that the drop in youth violence during the 1990s is due

in large part to the legalization of abortion in the 1970s. Their logic is that the expansion in abortions, especially among poor women, led to fewer births of unwanted children who, had they been born, would have contributed more than their share of criminal violence as teenagers in the 1990s. Although Levitt and Donahue offer some intriguing evidence for their thesis, it is inherently difficult to prove the counterfactual, that is, to demonstrate that something would have happened (more crime) had something else not happened (legal abortions). And even if they are correct about how the expansion of abortion might have led to the contraction of youth crime, their argument is silent on the long-term decline in adult crime, as well as the abrupt increase in youth crime during the 1980s. Finally, who is to say how many children, once born, remain "unwanted"?

The "more abortions, less crime" thesis is, not surprisingly, controversial. It is also quite new, and replication studies by other researchers have not yet appeared. Several other explanations for the crime drop have received greater research attention. Those emphasizing the following four factors are particularly prominent in both scholarly and policy circles: better policing, growing imprisonment, the booming economy, and firearms policies.

Policing

Some analysts believe that smart and tough policing is behind the crime drop. That is the reason given by Mayor Rudolf Giuliani and former Police Commissioner William Bratton for the dramatic drop in New York City's homicide rate during the 1990s. However, homicide rates also have decreased sharply in cities that did not noticeably alter their policing policies, such Los Angeles, or that instituted very different changes from those in New York, such as San Diego. Aggressive policing against minor offenses may have contributed to the crime decline in New York and elsewhere but, as Orlando Patterson and Christopher Winship have pointed out, at the price of heightened police-citizen tension and violence.

Prison Expansion

The other criminal justice response that has been touted as responsible for the crime drop is the massive expansion in incarceration. The prison population has quadrupled in size since 1980, and now numbers more than 1.3 million inmates. It would be surprising if incarceration growth of that magnitude had no effect on the crime rate. But little agreement exists on the size of that effect**.** Also, whatever crime suppression effects incarceration may have must be reckoned against possible crime increases resulting from the diminished economic prospects of ex-prisoners and the community instabilities associated with widespread imprisonment.

Prison expansion has been accompanied by a growth in the number of sentenced offenders subject to the death penalty and a dramatic rise in executions since the revival of capital punishment in the U.S. in the 1970s. By the end of 1999, more than 3,500 inmates were on death row, and nearly 600 had been executed. However, whatever the merits of the death penalty, less violent crime does not appear to be one of them. No credible evidence supports the use of capital punishment to reduce homicide or other forms of criminal violence.

The Economy

One benign alternative to expanded imprisonment is expanded employment. There seems little doubt that the record drops in unemployment rates, including those for minority teenagers, during the 1990s economic boom contributed in some way to the crime decline over the same period. But in what way? The relationship between employment and crime is far from simple and is the subject of ongoing debate among social scientists. Do crime rates fall during periods of economic growth because more people are working or because working people are making more money? And if people are earning more, and buying more, that creates more opportunities for theft and the violence that sometimes accompanies it. Moreover, a drop in the unemployment rate, or an increase in wages, may only reduce crime when *illegitimate* opportunities for making money, like drug dealing, are disappearing. If that is true, it is the *combination* of rising legitimate and falling illegitimate opportunities that has made criminal activity a less attractive alternative to legal work for many low-income youth.

A sizable fraction of teenagers, inner-city teenagers in particular, switch back and forth from low-end jobs in the legitimate and illegitimate labor markets, depending on shifts in prevailing opportunities. During periods of stagnation in the legitimate labor market and growth in illegitimate opportunities, such as the 1980s crack epidemic, we should observe increases in youth crime and violence. Likewise, we should observe drops in teenagers' criminal involvement when their legitimate opportunities are expanding and their illegitimate opportunities are shrinking, as during the economic boom and crack market crash of the 1990s. Both observations fit the temporal pattern of serious youth violence over the past two decades.

Firearms Policy

Given the significant role of guns in serious criminal violence, it is not surprising that the crime decline has been linked to changes in firearm regulations. Some analysts believe that granting persons permission to carry firearms in public deters violent crime by making offenders wary of armed victims (Lott, 1998). Others favor background checks and waiting periods, such as those required by the 1994 Brady Act, as a way to reduce criminal misuse of handguns. That is, some people think, in the words of one pro-gun enthusiast, that more guns lead to less crime, while others believe that fewer guns, or fewer guns in the "wrong" hands, will reduce serious criminal violence.

Evidence regarding the effectiveness of either policy is mixed. Some firearm initiatives, such as the popular gun "buy-back" programs that have sprung up over the past decade, clearly do not reduce levels of firearm violence. More promising strategies include longer prison sentences for using a gun in a crime and police "gun patrols" in which seizures of illegal guns are focused in high-risk areas. However, we do not know how much of the crime decline can be attributed to either of these factors.

THE BIG PICTURE

What should we make of these various partial accounts of the 1990s crime decline? First, none of them is a complete explanation for the crime drop. That is not just because researchers

lack sufficient evidence, but more importantly because major social phenomena, such as serious crime, rarely are driven by a single factor. A comprehensive explanation of the crime decline will have to encompass multiple, interacting factors. Second, we cannot create a comprehensive explanation simply by adding together the various causal factors highlighted in these partial accounts, because we lack a theory that tells us just how it is that law enforcement, imprisonment, economic expansion, drug markets, and firearm diffusion--not to mention abortion--combine to reduce crime in the context of long-term trends. We badly need such an account if we are to anticipate and prepare for, much less forestall, the next increase.

Although such a theory has not yet been produced, productive first steps have been taken. Gary LaFree (1998) argues that changes in crime rates reflect the rise and fall of *institutional legitimacy* in a society. The basic function of institutions such as the family, economy, and political system is to regulate social behavior in the service of basic human needs. When institutions function properly, they enjoy high levels of legitimacy**.** People believe in the institutions, play by the rules, and crime rates decline. At other times, people question whether institutions are getting the job done, for example, when divorce and unemployment rates rise. Institutions lose people's allegiance and the capacity to control people's behavior, and crime rates go up. LaFree has applied his theory to the dramatic rise in crime rates that occurred during the late 1960s and in the 1970s, a period of significant social upheaval, political scandal, and institutional challenge. Crime rates stabilized in the 1980s, in part, Lafree suggests, because some of the changes that had wrenched the institutions slowed or reversed (divorce rates stopped climbing, the economy began to grow), and also because policy makers responded to the increase in crime by expanding secondary institutions, such as the social welfare and criminal justice systems**.** Those expansions helped to head off further crime increases.

When LaFree published his argument, the crime decline of the 1990s had just begun, yet if the theory of institutional legitimacy is correct, crime rates will fall when the economy is booming, consumer confidence (an indicator of economic "legitimacy") is climbing, and prisons are expanding--all trademark characteristics of the roaring '90s. These changes evidently were sufficient to offset the effects of the Clinton scandals on political legitimacy and to permit a substantial downsizing of the welfare rolls.

Legitimacy theory, however, is both too broad and too narrow to fully explain the crime decline and the longer trend of which it is a part. Too broad, because it tells us little about the youth violence epidemic of the 1980s, and the social conditions in the cities that nourish drug markets and high levels of firearm violence. Too narrow, because it does not explain why, even during periods of strong institutional legitimacy such as the 1950s, rates of criminal violence in the U.S. remain higher than those in most other developed nations.

The sharp increase in youth homicide rates in the late 1980s, as noted earlier, was brought about by the firearm violence emanating in and around the inner-city crack markets. But why were the crack markets so heavily concentrated in already distressed urban areas, and why were they so violent? The insights of a number of sociologists shed light on these issues.

Crack sellers were attracted to those neighborhoods where residents were least able to keep them out. Such areas have been described by William Julius Wilson (1996) as subject to

multiple "dislocations" in the form of chronically high levels of joblessness and family disruption, and extreme social isolation. Their residents often are unable to engage in the kind of cooperative and supervisory activities that Robert Sampson and his colleagues term "collective efficacy" (Sampson, Raudenbush, & Earls, 1997). Collective efficacy enables communities to contain street crime and resist the predations of drug dealers--in fact, it very much defines what we mean by the word "community." With isolation from mainstream patterns of conduct, alienation from formal institutions of justice, and diminished personal security comes the development of an alternative "code of the street" that, according to Elijah Anderson (1999), encourages violent responses, particularly among young men, to perceived slights, insults, and disrespect.

Prolonged joblessness and reduced collective efficacy explain why illicit drug markets emerge when and where they do; isolation, alienation, and the code of the street explain why they are so violent. These ideas help to fill in the gaps in LaFree's theory, but they do not contradict its basic premise that crime rates increase with the loss of institutional legitimacy. On the contrary, it is hard to imagine a better illustration of that premise than the barren institutional landscape typical of so many high-crime inner-city neighborhoods.

HOW LONG WILL IT LAST?

If the ideas of Wilson (1996), Sampson et al. (1997), Anderson (1999), and others help to narrow the focus of the legitimacy theory on the isolated ghetto poverty areas of the inner cities, we should remember that, even at its low points, criminal violence in the United States remains very extensive by international standards. The U.S. homicide rate in particular--even the White homicide rate alone--is higher than that of every other developed nation. Some analysts have, reasonably enough, tied the high level of lethal violence to the limited regulation and widespread possession of firearms in the U.S. Certainly firearms are deadly implements, but still we must ask why they are so unrestricted and plentiful in comparison with other nations, and more basically, why they are so often used to kill people.

An influential theory proposes that people will use violence as a means of "self-help" when they are cut off from lawful, non-violent means of resolving conflicts or protecting themselves. We have already seen one application of this theory in the explanation of women's use of violence when they lack alternative ways of protecting themselves from abusive partners. Now consider the role of gun violence in illicit drug markets. Unable to use the police and courts for resolving disputes with suppliers, competitors, and customers, purveyors of criminal commodities use violence to enforce organizational discipline, secure territory and supplies, collect debts, and protect against theft--and firearms are very effective tools of the trade. Once guns enter the picture, the violence that begins as an enforcement code in drug markets can quickly diffuse throughout a community as people seek to protect themselves by any means necessary.

As the demand for crack diminished, so did the markets that supplied the drug and generated the violence, and the crime drop began. Multiple, interacting factors are responsible for the crime decline of the 1990s, as well as the increase that proceeded it. A common feature of these factors is their cyclical nature, and that is a clue to how long the crime decline will last.

While cycles in the demand for particular drugs, in economic conditions, and in police aggressiveness in going after guns can result in crime reductions, as we saw during the 1990s, those reductions are limited to the cycle times of the forces producing them. Lasting and steeper reductions will require corresponding transformations in the chronic, non-cyclical conditions of economic insecurity, social isolation, and alienation found in our nation's most violent communities. The crime decline offers opportunities for social change that are not available when people are afraid to participate in their communities, but time is running out.

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DISCUSSION

Paul Blackman: Vance, what is the relation of incised wounds to mortality of the victim?

Vance McLaughlin: It's not possible to tell.

Richard Block: A huge number of wounds by knife exist historically.

Roland Chilton: The definition of murder has changed over time. An example is death in an automobile accident, this was once considered to be murder. In the days before *Roe v. Wade*, abortion was considered to be murder and physicians were charged. In the historical Chicago data set, botched abortions were not considered murder, yet approximately 40% of women undergoing abortions died during the procedure. Socioeconomic circumstances are related to weapon availability. Historically, women used gas from gas lights to asphyxiate their children. Doctors in abortions were used as offenders.

Steve Roth: Have semi-automatic gun use and availability increased over time? Who owns the guns? In surveys of gun ownership, illegal firearms will not be identified.

Paul Blackman: I used production figures as opposed to use in crimes. For instance, illegal guns owned by young Black males will be underreported.

Steve Roth: Does lighter weight caliber increase speed of firing?

Paul Blackman: More rounds can be used and carried.

Steve Roth: The ricochet by Hinckley in the assassination attempt was from a smaller .22 caliber round?

Paul Blackman: In trained hands a .22 is very efficient. Even small rounds can be deadly.

Derral Cheatwood: Was there anyone with more than eight stab wounds?

Vance McLaughlin: We don't have enough from Savannah to say much about that, but we did have a few cases. Offenders have now become more savvy in their attempts to change the crime scene based upon information they have learned form the media. For instance, one woman had multiple methods including asphyxiation and multiple stab wounds.

Derral Cheatwood: Did you look at newspaper accounts of the homicides? Pocket pistols were very popular then. Did you find many back then and have you seen a trend now that they are less popular?

Vance McLaughlin: The smaller caliber guns are still popular, just less so now.

Derral Cheatwood: The size and number of holes, and where they are on the body determines whether the victim dies. According to Zimring, the number of rounds in youth gang fights from semi-automatic fire fights increases mortality.

Vance McLaughlin: Nobody has to do a reload. In the Savannah data, we did not see "spray and pray."

Paul Blackman: The number of rounds fired in a police shoot-out was minimal.

Roland Chilton: Regarding the impact of incarceration on the homicide rate, I would like to see data on this. Has it reduced the homicide rate? Is there a difference based upon race? Blacks are overrepresented in incarceration rates. Has this shown an effect?

Richard Rosenfeld: Thomas Marvell's work is on the mark on this. Effects are fairly sizable. Perhaps one quarter of yearly change results from these increases in prison population. This does not justify large incarceration rates. There might be other ways to achieve the same end at less social cost.

Paul Blackman: Are you locking up the right people? Is it worth the effort?

Roland Chilton: The fad and fashion of drug use does play a significant role in the homicide rate.

Richard Rosenfeld: Measuring "fad and fashion" is the challenge.

John Jarvis: Is criminal homicide preventable? Is there really a "degree of preventability"? There are multiple factors that play a role in the homicide rate. Is there any evidence that any particular factor(s) are having an impact more than any others (i.e., labor/economic)? This question is about politicians wanting most bang for the buck.

Richard Rosenfeld: No. State of the art is not there. No one has a model that can estimate the relative effects of the multiple factors. Under policy feasibility, it depends on beliefs of the politicians. There are promising strategies such as sentencing enhancements, local level enforcement, and targeted deterrence strategies.

Paul Blackman: Policy makers are not necessarily interested in what works.

Roland Chilton: Other countries reduced gun homicide rates. We should look to them.

Paul Blackman: Other countries already were low.

Richard Block: Are there any ways to measure real interventions in Canada's new gun laws.

Orest Fedorowycz: Not yet. Compliance is the issue now. It has a 5-year phase in.

Jenny Mouzos: In Australia in 1996 when 36 people were killed with semi-automatics, this led to new legislation that included turning in of automatic weapons and licensing of guns. It is not clear what effect that legislation had though even though there have been no mass killings and there has been a decrease in firearm homicides.

Steve Roth: It was just an anomaly, right?

Jenny Mouzos: Right.

Jay Corzine: There are two strands to this medical discussion--shotguns have a greater chance of killing--quality and speed of delivery. You can focus on what you do after the incident to prevent death. Medical intervention does make a difference. They could target areas where incidents occur and decrease the time in takes to get them to the hospital. This could decrease the number of homicides, but not the number of altercations.

Richard Rosenfeld: One way to evaluate firearms policy is to ask which policies raise the cost and which ones do not. Policies that raise the "cost" of getting a firearm seem to work. In the old model, it was believed that anyone who wanted a gun would get one, no matter the effort. That is not supported. The demand for firearms is really elastic.

Jay Corzine: There is a difference between the type of gun owner and who is committing the homicide.

Roland Chilton: Our 2000 Cook County Hospital tour revealed that the number of wounds increases the cost. If people in Chicago knew the true cost of gunshots in terms of medical care, they would change the policies.

Vance McLaughlin: The new chief of police's mandate is to reduce violent crime. Why are these crime robberies occurring now? Because school's out for the summer. Politicians want no crime, but do not like aggressive enforcement policies.

James Black: How do people learn to take advantage to use a gun when other avenues are cut off? This is an important question.

Richard Rosenfeld: Street offenders get into altercations, but have little recourse from police even though they have almost daily contact with the police. So the offenders turn to "self help"--i.e., violence--to solve their altercations. Study police action of complaints from street criminals. Would police wink at minor offenses to facilitate learning the process of street crime? This can be used to limit "self-help" by offenders.

Lois Mock: This is the "Cease Fire" model in Boston. In day-to-day confrontations, low level crimes are not dealt with in an attempt to learn about gun offenders and homicides. Then the police target the gun offenders and get them on any offense, no matter how minor.

Paul Blackman: They will go after even minor offenses if the offender uses a gun.

Mieko Bond: It is not possible to take guns back. There is a need to talk about what we can do now. Taking care of causative factors includes social support.

Barrie Ritter: NIJ should show regions with the highest homicide rates as opposed to cities with high numbers.

Tim Kephert: What was the exact legislation in Australia on automatic weapons?

Jenny Mouzos: Ownership requirements in Australia include need, stability/fitness, and proper storage. No information on number of registered firearms is available for Australia. Ninety percent of gun homicides involved unregistered firearms.

CHAPTER TWO

ISSUES IN DATA COLLECTION AND MEASUREMENT

ESTIMATING MISSING DATA IN HOMICIDE VICTIM/OFFENDER RELATIONSHIPS

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ABSTRACT

Homicide cases suffer from substantial levels of missing data, a problem largely ignored by criminological researchers. The present research seeks to address this problem by imputing values for unknown victim/offender relationships using the EM algorithm. The analysis is carried out first using homicide data from Los Angeles County (L.A.) (1994-1998), and then compared to imputations using homicide data for Chicago (1991-1995), using a variety of predictor variables to assess the extent to which they influence the assignment of cases to the various relationship categories. The findings indicate that many of the unknown cases likely involve intimate partners, other family, and friends/acquaintances, although they disproportionately involve strangers.

INTRODUCTION

Our understanding of the nature of crime in society necessarily depends on our ability to collect valid and reliable data describing both the extent of its occurrence and the characteristics of its participants. As criminologists will attest, this is no small feat. And while the development of self-report and victimization surveys have helped to compensate for a number of the limitations inherent in using official statistics, a number of obstacles to obtaining this goal remain. One of the most significant of these, as well as the least addressed, is that of missing data.

Missing data are a common problem in the social sciences. They are a significant problem in criminology and criminal justice because of a wide range of problems ranging from a failure of victims to report crimes for a variety of reasons, to offenders who do not wish to attract official attention and recording for obvious reasons (Riedel, 2000). Included in this range of recording and reporting difficulties are the statistical systems of local, state, and the FBI's Uniform Crime Reporting programs. None of these systems has a uniform system of quality control in which the validity and reliability of reports are checked by independent agencies (Biderman & Lynch, 1991). For example, complete information is not available on homicides reported on the Supplementary Homicide Reports that are part of the FBI's Uniform Crime Reporting program (Pampel & Williams, 2000; Riedel, 1999; Williams & Pampel, 1998). While at least 44 states have developed mandatory reporting programs, the existence and willingness to impose sanctions for nonreporting is unclear.

Further contributing to the problem, over the past several decades there has been a substantial decline in the percentage of homicides cleared. This phenomenon has occurred in both the U.S. and, to a somewhat lesser extent, Canada. Homicide clearance rates in the U.S. have declined from 92.3% in 1960 to 65.7% in 1996 (Riedel, 1997). In Canada, uncleared homicides in 1993 were slightly higher than 20%, compared to 5% in 1966 (Silverman & Kennedy, 1997). This decline in homicide clearance rates has substantial implications for the magnitude of missing data on homicides. In particular, about one-third of homicide cases in the U.S. and one-fifth of homicides cases in Canada are missing offender-related variables. Stated this way, levels of missing data in homicide cases seem nothing short of unacceptable. It is surprising, then, how little attention this predicament has generated.

Research in Canada and the United States indicates that uncleared homicides predominantly involve homicides with concomitant felonies such as robberies or rapes (Cardarelli & Cavanagh, 1992; Regoeczi, Kennedy, & Silverman, 2000; Riedel & Rinehart, 1996; Rinehart, 1994; Silverman & Kennedy, 1997). Because most felony homicides are believed to involve strangers, claims have been made by law enforcement officials that these are stranger homicides. However, such an assumption may be problematic. Riedel (1987), for example, argues that not all felony homicides involve strangers and not all stranger homicides are felony homicides. He further suggests that while missing data may pose a problem, existing research indicates that a minimum of one-third of stranger homicides are not felony-related and only around 20% of the robbery killings occur among strangers. Williams and Flewelling (1988) found that the atypical categories of nonconflict family and acquaintance homicides (defined primarily as those occurring during the commission of other crimes) and conflict stranger homicides (those homicides with no evident connection with other crimes) were less rare than one might expect. Decker (1993) found that a larger proportion of acquaintance homicides than stranger homicides had an instrumental motivation, and furthermore that half of all stranger homicides had an expressive motive. Flewelling and Williams (1999) suggest that the obscured distinction between approaches to classification based on circumstance and those based on relationship may be the result of a conceptual overlap resulting from the assumption that homicides committed during the commission of another crime involve strangers whereas those involving individuals known to each other result from circumstances such as arguments. Furthermore, the few studies which have empirically investigated the stranger/felony assumption, either by recoding the data or using simple estimation procedures, have found only stranger homicides cannot be merely inferred from the amount of felony-related homicides.

Taking a more social constructionist perspective of the problem, unreliable and biased data are an opportunity for a variety of claims makers to promote their version of social problems (Spector & Kitsuse, 1987). There is a substantial literature on how statistics are used to shape and promote crime-related social issues (Best, 1988, 1999; Gilbert, 1991; Hotaling & Finkelhor, 1990; Jenkins, 1994; Reuter, 1984). Riedel (1998), for example, has shown that police recorded stranger homicides increased only slightly, from 13.4% in 1977 to 15.1% in 1995. For the same period, unknown relationship percentages increased from 27.0% to 39.4%. The combined percentages for stranger and unknown show an increase from 40.4% in 1977 to 54.5% in 1995--mostly accounted for by an increase in unknowns. By combining unknown relationships with police-recorded stranger homicides, claims were made by the FBI and reinforced by the media that stranger homicides had increased to approximately 53% of all homicides. Such a feat was

accomplished by implying that "unknown" referred to strangers rather than a police classification that victim/offender relationships were not known. Because stranger violence is one of the most fear provoking crimes, successful claims that over half of the homicides involves strangers sets the stage for greater claims on criminal justice resources. Thus, serious distortions may arise by treating stranger homicides and unsolved cases as synonymous.

An available solution to this problem of missing data is the development and exploration of missing data estimation models. There are a large number of estimation approaches and models that are used frequently in other disciplines (Acock, 1997; Little & Rubin, 1987: Little & Schenker, 1995; Madow, Olkin, & Rubin, 1983). These methods are particularly appropriate in the case of homicide statistics because missing cases are a smaller problem than missing values. In other words, estimation techniques for missing values are more highly developed than estimation techniques for missing cases (Madow, Olkin, & Rubin, 1983). Unfortunately, except for a modest body of literature, crime researchers have largely ignored the problem.

Ignoring missing data in the calculation of family, acquaintance, and stranger homicide rates when there is a correlation between the level of missing data and any of the independent variables used in a comparative analysis may lead to erroneous estimates of the effects of these variables (Williams & Flewelling, 1987). Even where such a correlation does not exist, the exclusion of cases from homicide calculations on the basis of missing information may increase random error, which can in turn reduce the model goodness-of-fit, the efficiency of estimates, etc. (Williams & Flewelling, 1987). Both kinds of problems can impinge on the goal of achieving an accurate and sound understanding of variation in homicide rates and its causes (Williams & Pampel, 1998). Adjustment for missing data is particularly important in the case of longitudinal analysis, since the percent missing varies from year to year (Williams & Flewelling, 1987).

The approach taken in the current research seeks to improve upon the existing research in at least four fundamental ways. Williams and his colleagues, as well as the study by Messner, Deane and Beaulieu (2000), relied on data available from the SHR. Although widely used as a data source, it has limitations that are avoided by using data from a city police department. Thus, the present analyses take advantage of the superior quality of homicide data available from the Los Angeles and Chicago police. This allows us to both circumvent some of the limitations of using SHR data, as well as to examine whether imputations differ across data sets drawn from different cities, where the nature of homicide may also vary.

Another area for expansion and improvement upon the existing research concerns the categorization of victim/offender relationships. For example, Williams and Flewelling (1987) do not distinguish between spousal and other family relationships. Moreover, Maxfield (1989) argues that the highly aggregated categories used by Williams and Flewelling (1987) in their development of adjusted homicide rates lead to the loss of important distinctions between event types. The categorization of victim-offender relationships used by Williams and Pampel (1998) does expand beyond that used in Williams and Flewelling (1987) to include family, intimate non-family, acquaintance, and stranger. However, there may be problems with their inclusion of spousal homicides together with other family homicides, while boyfriends, girlfriends, ex-wives, ex-husbands, and homosexual couples constitute a separate category. Thus, there remains a need

for analyses using more concise victim-offender categories. The current research seeks to address this issue by testing several categorizations of victim/offender relationships to see whether the number and coding of victim/offender relationship categories has an impact on the degree to which unknown categories will be assigned to the stranger category.

The current research also seeks to examine whether and how imputations are affected by the set of predictors from which the parameters are estimated. This is accomplished by varying the types of variables used. Our imputation procedure seeks to take advantage of as much information as possible about the characteristics of victims, offenders, and the offense in allocating unknown cases to victim/offender relationship categories. We use far more variables than any of the existing research, much of which relies on a single variable — the circumstances surrounding the offense — which also suffers from a great deal of missing data (for LA, 11% of cases are missing information on circumstances; for Chicago, 25.5% of cases are missing information on circumstances), making it a dubious predictor of other unknown variables.

The final issue has to do with the method of imputation itself. Among the available methods for handling missing data are listwise deletion, pairwise deletion, mean substitution, hot-deck procedures, regression, and expectation-maximization (EM). Only the latter 3 methods impute a *value* from the predictive distribution. While hot-deck procedures have been shown to reduce bias associated with nonresponse, these gains are offset by corresponding increases in the variance of estimates (Cox & Folsom, 1978). Although regression models are widely used, they are not appropriate here because the dependent variable and many of the predictor variables are categorical data. In addition, Acock (1997) notes that regression based techniques result in overprediction because there is a lack of adjustment for errors in prediction. Hence, missing values, now replaced with predicted values, will be perfectly predicted where the same independent variables are being used for explanation. Acock reviewed a large number of missing data estimation models and concluded that expectation-maximization (EM) is the best general solution to missing data problems. Thus, our research uses the EM algorithm as the basis for imputation.

PREVIOUS RESEARCH

Only a very small group of studies have specifically addressed the application of missing data estimation procedures to the problem of missing observations in homicide data. The methodology used in these analyses varies widely, as do the findings.

Careful Coding

One approach to estimating stranger homicides has involved a careful recoding of available records. For example, using all available paper records from the St. Louis Police Department from 1985 through 1989, and an expanded classification system, Decker (1993) recoded 777 cases. Because of intensive data classification and reliability checks among three coders, only 4% of the victim/offender relationships remained unknown.

Decker recalculated the percentages of victim/offender relationships omitting the category of unknowns (31%). He found remarkable agreement between St. Louis data and

national adjusted scores. For example, his findings reveal that 18% of the former and 19% of the latter were stranger homicides. Both the St. Louis and national adjusted scores showed the same percent of homicides involving acquaintances. He concluded that stranger homicides do not account for the majority of homicides classified as unknown relationships; indeed, they may be distributed among uncleared cases in the same proportions as they are among cleared homicide cases. In the face of careful coding, then, unknowns in victim/offender relationships may be distributed in a fashion similar to that for most homicides. Decker (1993) concludes:

> Our ability to classify a large proportion of homicides resulted in a distribution across categories of victim-offender relationship that corresponded closely to national data. This finding suggest that stranger homicides may not account for the bulk of those events which remain unclassified, and that missing data from unsolved homicide cases may not distort the distribution of cases across victim-offender relationships. (p. 608)

Kirk Williams and his colleagues have found contrasting results using statistical methods of weighting data and imputing missing values.

Weighting, Adjusting, and Imputing Stranger Homicides

The most extensive research on estimating stranger homicides has been done by Kirk Williams and his colleagues. In a 1987 article, Williams and Flewelling (1987) introduced a weighting and adjustment procedure using SHR data from 1980 through 1984. In a recent article, Pampel and Williams (2000) added an imputation method, compared it to other methods, and compared 1980 and 1990 city data. Both studies used single-victim and single-offender cases where that information was available.

1987 Research

For the 1980 through 1984 SHR data, Williams and Flewelling (1987) calculated a *weighted unadjusted* rate by dividing the number of victims reported in the *Crime in the United States* by the number of victims reported in the SHR. The number reported in the former document includes FBI estimations for nonreporting agencies. The unadjusted counts are then multiplied by this weighting factor. Weights were computed for cities over 100,000 and all states in 1980. The effect of this procedure is to compensate for the numbers of unreported events.

The authors also made use of a rate that was a straightforward extrapolation of the composition of known cases to unknown case. Thus, if 50% of the known events involved family members, 50% of the unknown cases are added to family homicides before family homicide rates are calculated. This method was not used in subsequent research.

The *weighted, within cities adjusted rate*, called the circumstances adjusted rate in the 1987 study, consisted of using a variable that is (a) more frequently reported than victim/offender relationships and (b) is correlated with recorded values of the latter. Williams and Flewelling (1987) used felony involvement to adjust stranger homicides because it is a correlate and better reported than stranger homicides. Using nationwide SHR data, the unadjusted percentages for victim/offender relationships were: family (26%), acquaintances

(54%), and strangers (20%). Using the circumstances adjusted procedures, the percentages were family (23%), acquaintances (52%), and strangers (25%). The adjustment procedure resulted in small differences between adjusted and reported percentages for family and acquaintance homicides, but a larger increase in stranger homicides.

2000 Research

Pampel and Williams (2000) compared the unweighted unadjusted rates, which exclude missing information, to rates calculated using two adjustment and one imputation procedure. The weighted unadjusted method is identical with the method used in the 1987 research. The weighted, within-city adjusted method was similar to the circumstances adjusted method in the 1987 study. The same classifications of circumstances were used, but victim/offender relationships were divided into family, intimate nonfamily, acquaintance, and stranger homicides. The procedure is described as follows:

To illustrate the adjustment of family homicide rates, the procedure finds for each city the proportion of all felony homicides that involve family members. It then multiplies that proportion by the number of felony homicides with an unknown offender. When added to the original number of family homicides in the felony category, the product gives an adjusted number of family homicides. It then repeats the calculation for family homicides in each of the other four circumstances. It finally sums the family homicides across the five circumstance categories to obtain an adjusted number of homicides involving family members. Dividing by the population and multiplying by 100,000 turns the number of family homicides into an adjusted rate. The procedure is the same for calculation of intimate nonfamily, acquaintance, and stranger homicides (Pampel & Williams, 2000, p. 666).

Finally, there is a weighted, between-city method, which weights and imputes missing values for victim/offender relationships. In addition to victim/offender relationships, the independent variables used for imputing were sex, race, and age of the victim, the homicide circumstances, weapon type, and size and location of the city. This method begins by computing a multinomial logistic regression using the four types of family relationships mentioned above. The regression saves the predicted probabilities for each category of the dependent variable, both for cases used and those not used because of missing values. Since there are probabilities for each type of victim/offender relationship, the category with the highest probability is assigned a value of "1" while all the other categories are given "0".

While they found no difference between the weighted unadjusted percentages and the unweighted unadjusted in 1980 and 1990, both the weighted within- and between-city methods showed significant changes. In the case of weighted within-city percentages in 1980, acquaintance homicides showed a significant decrease while stranger homicides showed a significant increase when compared to the unweighted unadjusted percentages; this was not true for 1990 within-city adjusted percentages.

In the 1990 data, family, intimate, and stranger homicides show a significant decline for the weighted between-city method while acquaintance homicides show a significant increase. The decline in family and intimate homicides has been documented in other studies (Browne &

Williams, 1989; Browne & Williams, 1993; Browne, Williams & Dutton, 1999; Dugan, Nagin, & Rosenfeld, 1999). What is relatively new is the marked increase in acquaintance homicides which may be due to more homicides because of gangs and drugs (Blumstein, 1995).

Log-Multiplicative Association Models

Messner, Deane, and Beaulieu (2000) have developed a very different approach to imputing missing values for unknown victim/offender relationships which is based on a log-multiplicative model known as the heterogeneous column, row-column-effects model. They use this technique to impute values for unknown victim/offender relationships in SHR data separately for the years 1996 and 1997 based on the association between victim/offender relationships and circumstances (felony, other felony, non-felony, other non-felony, undetermined). Their imputation method results in a greater proportion of unknown victim/offender relationships being allocated to the stranger category than the methods used by Williams and his colleagues, which increased from approximately 17% to 24% while the proportion of cases in all other categories declined after imputation.

METHOD

Data

The data for this study were derived from two sources. The Los Angeles homicide data are taken from the California Homicides Data File and consist of all homicides occurring in the jurisdiction of the Los Angeles Police Department and reported to the California Criminal Justice Statistics Center. Data used in this study consists of 3,380 wilful homicides from 1994 through 1998. Excluded were 60 justifiable homicides by private citizens, 10 manslaughters, and 71 justifiable homicides by police officers. It was decided that analyzing homicides over a 5-year period would reduce year-to-year aberrations in reporting.

The Chicago homicide data were derived from the homicides in the Chicago Data File. This file contains information on all homicides included in the murder analysis files of the Chicago Police Department for the years 1976 through 1995. Justifiable homicides and manslaughters are excluded. Since using the full set of cases contained in the data file would be too cumbersome given the nature of the research, the current analysis uses only those cases for the 5-year period between 1991 and 1995, a total of 4,459 cases.

Measures

Given the comparative nature of the research, the predictor variables in the two data sets were coded to be as analogous as possible.

Sex. Sex was coded separately for victims and offenders with males coded as “1” and females coded as “2”.

Age. Age was treated as a continuous variable for both victims and offenders. Offender age was logged in both data sets, and victim age was logged in the L.A. data, to correct for skewed distributions of these variables.

Race/Ethnicity. For both victims and offenders, race/ethnicity was coded into a set of four dummy variables: White (reference category), Black, Latino, and other.

Total number of Victims and Offenders. Both of these variables were treated as continuous. The total number of offenders was logged in both data sets to correct for skewed distributions.

Victim/Offender Relationships. Victim/offender relationships were coded into four dummy variables: intimate partners (reference category), other family, friends/acquaintances, and strangers.[1]

Location. Locations were grouped into four dummy variables: private indoor location (reference category), public indoor location, public outdoor location, vehicle.

Circumstances Surrounding the Offense. The circumstances surrounding the offense were categorized as follows: domestic altercation (which includes categories like love triangle, altercation over children, general domestic altercation; sexual altercation, altercation over desertion/termination of relationship), other altercation (which includes categories like altercation over gambling, argument over money or property, altercation over politics, racial/hate altercation, altercation over (alleged) theft), felony-related (which includes categories like burglary, armed robbery, rape, unlawful use of a weapon, victim is a narcotics dealer, victim is a prostitute, arson, attempted theft/shoplifting, blackmail, deceptive practice, ransom);

[1] Coding of victim/offender relationship for the L.A. data was as follows:
(1) intimate partners (husband, legal or common-law; wife, legal or common-law; ex-husband; ex-wife; boyfriend; girlfriend; homosexual relationship)
(2) other family (mother, father, son, daughter, brother, sister, in-law, stepfather, stepmother, stepson, stepdaughter, other family)
(3) friends/acquaintances (neighbor, acquaintance, employee, employer, friend, gang member, other known to victim)
(4) strangers
Coding of victim/offender relationship for the Chicago data was as follows:
(1) intimate partners (husband, legal or common-law; wife, legal or common-law; ex-husband; ex-wife; ex-common-law husband; ex-common-law wife; boyfriend; girlfriend; ex-boyfriend; ex-girlfriend; homosexual couple)
(2) other family (which includes categories like father, mother, son, daughter, half-brother, half-sister, uncle, aunt, stepfather, stepmother, foster father, foster mother, father-in-law, mother-in-law)
(3) friends/acquaintances (which includes categories like landlord, roomer/roommate, business partners, employer, neighbor, acquaintances, gang member, sexual rivals, cell mate/inmate, informant of crime, restaurant/bar staff, drug pusher)
(4) strangers

gang/organized crime (gangland killing, drive-by shooting, organized crime, contract killing, contract arson, sniper attack); and other motive (medical treatment, escape, insurance fraud, mental disorder, mercy killing, suicide pact). Domestic altercations functioned as the reference category.

Weapons. In the L.A. data, weapons were categorized as handguns, long guns, knives, and other weapons. Because the Chicago data contained an additional category of semi-/fully-automatic weapons from which it could not be deciphered whether the gun was a handgun or a longgun, this category was retained as a separate category. The remaining weapons were classified into the categories of handgun, long gun, knives, and other weapons. Knives functioned as the reference category.

Analysis

Imputation of missing data was carried about by way of the Expectation-Maximization (EM) algorithm. EM is a technique particularly well suited to imputing missing data where there are few continuous variables as is the case with much criminal justice data. EM is carried out in two steps; the first step, the E step, finds the conditional expectation of the missing data given observed values and current estimates of parameters. The second step, the M step, consists of finding maximum likelihood parameters as though the missing data were filled in. The process is repeated although the second cycle now has missing data estimates from the first cycle. After each EM step, a covariance matrix is computed; when the values of the covariance matrix do not change or change by trivial amounts, the process comes to a halt (Acock, 1997). The EM procedure was carried out using a SAS macro developed by Paul Allison (1999). Allison's MISS macro uses the EM algorithm for maximum likelihood estimation of the mean and covariance matrix of the multivariate normal distribution for complete data. The algorithms in the macro are modeled on those discussed by Schafer (1997).

Models were run separately for the L.A. and Chicago data. Each model was analyzed twice using different sets of predictor variables. In the first model, only victim characteristics were included in the model as predictors, since these predictors contained far fewer missing values than offender-related variables. Included in this model were the following: victim sex, victim age, victim race/ethnicity, homicide location, motive, clearance, weapon, and number of victims. For those variables requiring a reference category, we designated the following: White victim, private indoor location, domestic altercation, and knife. Of the victim-offender relationship categories, intimate partners was the reference category. Reference categories were selected on the basis of the assumption that they contained cases with fewer missing values than for other categories. Once values were imputed for this model, it was rerun adding the offender-related variables of offender sex, age and race/ethnicity (with White offender as the reference category), and total number of offenders. This permitted a comparison of results to assess the possibility that additional information could be gleaned from the extra predictor variables.

When values are imputed for categorical variables such as victim-offender relationship, the initial values will be relatively meaningless. That is, a value of 0.53 for a variable which can take only one of two values (0 or 1), is relatively meaningless if left in this form. As a result, it is necessary to assign values of 0 and 1 by applying a basic set of rules. In the case of a

dichotomous variable, values of 0 and 1 are assigned on the basis of which is closer to the imputed value. For a four-category variable such as victim-offender relationship, the variable will be represented by three dummy variables. After imputation is complete, the following must be determined. If the imputed values for the three dummy variables can hypothetically be thought of as X_1, X_2, and X_3, then all three should be set to zero if $1-X_1-X_2-X_3$ is greater than either X_1, X_2, or X_3. Otherwise, if X_1 is greater than X_2 and X_3, X_1 should be assigned a value of 1 and X_2 and X_3 should be assigned values of 0, and so on (Allison, personal communication).

RESULTS

Using the MISS macro and assigning values on the basis of the rules delineated above, the following results were obtained. Table 1 shows the distribution of victim/offender relationships for L.A. homicides both before and after imputations. Table 2 shows the imputation results with the addition of offender-related variables to the set of predictors. What is most striking about these results is how little the distribution changes once the "unknown" victim/offender relationships are assigned to one of the four "known" categories. For both models (with and without offender-related variables), the percentage of cases in each victim/offender relationship category changes by less than one percent after missing values are assigned.

TABLE 1. Distribution of Homicide Victim/Offender Relationships for Los Angeles, Before and After Missing Value Imputation Using Victim and Offense Characteristics, 1994-1998

	Before Imputation		After Imputation		
Victim/Offender Relationship	Number of Cases	% of Cases	Number of Cases	% of Cases	Difference
Intimate Partner	115	4.2%	125	3.7%	-0.5%
Other Family	112	4.1%	118	3.5%	-0.6%
Friend/Acquaintance	1404	51.3%	1752	51.8%	+0.5%
Stranger	1105	40.4%	1385	41.0%	+0.6%
Total	2736	100%	3380	100%	0%

TABLE 2. Distribution of Homicide Victim/Offender Relationships for Los Angeles, Before and After Missing Value Imputation Using Victim, Offender, and Offense Characteristics, 1994-1998

	Before Imputation		After Imputation		
Victim/Offender Relationship	Number of Cases	% of Cases	Number of Cases	% of Cases	Difference
Intimate Partner	115	4.2%	121	3.6%	-0.6%
Other Family	112	4.1%	123	3.6%	-0.5%
Friend/Acquaintance	1404	51.3%	1748	51.7%	+0.4%
Stranger	1105	40.4%	1388	41.1%	+0.7%
Total	2736	100%	3380	100%	0%

However, the proportion of homicide cases involving strangers is unusually high in L.A. --around 40%. To examine the extent to which the imputation results may be due to the unique nature of homicide in this particular county, missing values on victim/ offender relationships were imputed for Chicago. As with the L.A. data, the model was run twice, first without and then including offender-related variables. The results are displayed in Tables 3 and 4.

TABLE 3. Distribution of Homicide Victim/Offender Relationships for Chicago, Before and After Missing Value Imputation Using Victim and Offense Characteristics, 1991-1995

	Before Imputation		After Imputation		
Victim/Offender Relationship	Number of Cases	% of Cases	Number of Cases	% of Cases	Difference
Intimate Partner	309	9.6%	378	8.5%	-1.1%
Other Family	239	7.4%	284	6.4%	-1.0%
Friend/Acquaintance	2172	67.3%	3054	68.5%	+1.2%
Stranger	505	15.7%	743	16.7%	+1.0%
Total	3225	100%	4459	100.1%	0%

TABLE 4 .Distribution of Homicide Victim/Offender Relationships for Chicago, Before and After Missing Value Imputation Using Victim, Offender, and Offense Characteristics, 1991-1995

	Before Imputation		After Imputation		
Victim/Offender Relationship	Number of Cases	% of Cases	Number of Cases	% of Cases	Difference
Intimate Partner	309	9.6%	385	8.6%	-1.0%
Other Family	239	7.4%	288	6.5%	-0.9%
Friend/Acquaintance	2172	67.3%	3022	67.8%	+0.5%
Stranger	505	15.7%	764	17.1%	+1.4%
Total	3225	100%	4459	100%	0%

The distribution of victim/offender relationships among homicides committed in Chicago differs considerably from that in L.A. In particular, there are proportionately more cases involving intimates, other family, and friends/acquaintances, and consequently fewer stranger homicides in Chicago than L.A. The proportion of "unknown" victim/offender relationships also differs between the two cities. In Chicago, 27.7% of cases involve unknown victim/offender relationships, compared to 19.1% in LA. However, in terms of the extent to which the distribution of victim/offender relationships changes once missing values are imputed for the unknown cases, the results are very consistent across the two data sets. Regardless of whether offender-related variables are included as predictors, the percentage change in the distribution of intimate partner, other family, friend/acquaintance, and stranger homicides in Chicago is minimal. The greatest change occurs for stranger homicides in the model containing victim, offender, and offense variables as predictors (Table 4), but even there the increase is only 1.4%.

Admittedly, these results are quite unexpected, and they differ from imputation results of Williams and his colleagues, and Messner et al. They are, however, quite consistent with the work of Decker (1993), whose recoding of St. Louis data revealed that the distribution of unknown victim/offender relationships was the same as among those where the relationship is known. That the same pattern emerged using two different data sets drawn from cities where the nature of homicide and the distribution of known victim/offender relationships differ considerably lends further credibility to the results. It is interesting to note that the addition of offender-related variables does little to alter the results. This may be due to the fact that variables such as offender sex, age, and race/ethnicity, as well as victim/offender relationship, tend to be missing together.

There are, however, two factors which may be affecting the results. The first concerns the categorization of victim/offender relationships. Since the same classification was used in both data sets, these results cannot speak to whether the imputations are influenced by, for example, the number of categories used for victim/offender relationship. To pursue this issue further, we ran a second set of imputations using a six-category classification of victim/offender

relationships which drew on the distinction between blood-related and non-blood related variables, as emphasized in the work of Daly and Wilson (1988). Victim/offender relationships were reclassified into the following categories: intimate partners, primary-blood, primary-other, secondary relationships, crime-related relationships, and strangers. Values were imputed for the L.A. data, first using victim- and offense-related variables and then adding offender-related variables. Due to the similarity of the results, only the former are shown (Table 5).

TABLE 5. Distribution of Homicide Victim/Offender Relationships Using an Alternative Classification for Los Angeles, Before and After Missing Value Imputation Using Victim and Offense Characteristics, 1994-1998

	Before Imputation		After Imputation		
Victim/Offender Relationship	Number of Cases	% of Cases	Number of Cases	% of Cases	Difference
Intimate Partner	115	4.2%	121	3.6%	-0.6%
Primary Blood	87	3.2%	92	2.7%	-0.5%
Primary Other	25	0.9%	25	0.7%	-0.2%
Secondary	562	20.5%	681	20.2%	-0.3%
Crime-Related	842	30.8%	1094	32.4%	+1.6%
Stranger	1105	40.4%	1367	40.4%	0%
Total	2736	100%	3380	100%	0%

The findings for this set of imputations reveal that refining the classification of victim/offender relationships to include more categories does little to change the percentage distribution of cases after missing values are imputed for the unknowns. The biggest change occurs in the crime-related category, but the increase is only 1.6%. The similarities of the distributions pre- and post-imputation are really brought home by the finding that there is no change at all in the percentage of cases involving strangers. Very similar results were obtained for Chicago using the six-category victim/offender relationship classification (Table 6).

TABLE 6. Distribution of Homicide Victim/Offender Relationships Using an Alternative Classification for Chicago, Before and After Missing Value Imputation Using Victim and Offense Characteristics, 1991-1995

	Before Imputation		After Imputation		
Victim/Offender Relationship	Number of Cases	% of Cases	Number of Cases	% of Cases	Difference
Intimate Partner	309	9.6%	375	8.4%	-1.2%
Primary Blood	178	5.5%	203	4.6%	-0.9%
Primary Other	244	7.6%	286	6.4%	-1.2%
Secondary	850	26.3%	1220	27.4%	+1.1%
Crime-Related	1139	35.3%	1615	36.2%	+0.9%
Stranger	505	15.7%	760	17.0%	+1.3%
Total	3225	100%	4459	100%	0%

Examining Table 6 we see that although the initial distribution of known cases among the victim/offender relationship categories differs somewhat from the L.A. data, the imputation results are consistent with those found for L.A. The distribution of cases changes very little once the unknown cases are assigned to one of the existing categories based on the imputation results. Thus, it appears that a more refined classification of victim/offender relationship categories does not have much of an impact on the extent to which imputed values change the distribution of cases across these categories. To this point, then, we are forced to conclude that distribution of unknown cases mirrors very closely the distribution of cases for which the victim/offender relationship is known.

The other possibility that must be considered as influencing the results concerns the predictor variables. Thus far we have used a set of variables which describe the characteristics of the victim and offense, and sometimes also the offender. Conspicuously absent from this list is a variable that is likely a strong predictor of victim/offender relationships: clearance status. The reason for its exclusion thus far concerns its unavailability in the L.A. data set. However, there is information for Chicago homicide cases concerning whether or not the offense has been cleared. Thus we decided to run one last set of imputations for Chicago, this time adding a dichotomous variable for clearance status (with cleared coded as "1" and uncleared coded as "2"). Since the results were very similar for models with and without offender-related variables, only the latter are shown (Table 7).

TABLE 7. Distribution of Homicide Victim/Offender Relationships for Chicago, Before and After Missing Value Imputation Using Victim and Offense Characteristics and Clearance Status, 1991-1995

	Before Imputation		After Imputation		
Victim/Offender Relationship	Number of Cases	% of Cases	Number of Cases	% of Cases	Difference
Intimate Partner	309	9.6%	367	8.2%	-1.4%
Other Family	239	7.4%	283	6.4%	-1.0%
Friend/Acquaintance	2172	67.3%	2865	64.2%	-3.1%
Stranger	505	15.7%	944	21.2%	+5.5%
Total	3225	100%	4459	100.1%	0%

The inclusion of clearance status in the model had a discernible impact on the results. In particular, there is a notable increase in the percentage of cases involving strangers from 15.7% to 21.2% after imputation. The percentage of cases in the remaining categories all drop once the unknown cases have been assigned, with the biggest drop occurring in the friend/acquaintance category (3.1%).

Unfortunately we cannot assess the impact of the inclusion of this variable for the distribution of victim/offender relationships among L.A. homicide cases. Nevertheless the results for Chicago raise several very important issues. First, the assignment of cases with unknown victim/offender relationships to known categories on the basis of missing value imputation will likely be influenced by the types of variables available to be used as predictors. It appears that the availability of a clearance status variable may be particularly important in this regard. However, because a tremendous amount of homicide research involves secondary data analysis in which the researcher has little or no control over what type of information is collected about each case, there may be a number of occasions where the data available will lead to assigned values which are unduly influenced by the absence of significant predictors during the imputation process.

The second issue raised by these latest findings concerns the issue of the pattern of missing values in the data. Research on missing values draws an important distinction between data that are missing completely at random (MCAR) and data that are missing at random (MAR). When data are MCAR, missing values are unrelated to the variables present in the data set. Thus, if the data are MCAR, the missing values would be randomly distributed across the variables and the subset of cases for which complete information exists would be a random subsample of the original sample. In other words, the nature of the homicide case (e.g., the type of victim and/or offender involved, the circumstances under which the killing took place) would have no impact on whether the data were missing or not.

Previous analyses of both of these data sets have shown the MCAR assumption to be untenable (Regoeczi & Riedel, 1999, 2000). For example, among the 2899 Chicago homicide cases with no missing data, the average victim age is 28.64. This average drops to 25.14 among the 100 cases where the motive and victim-offender relationship variables are missing, and increases to 34.36 among the 83 cases which have missing values for victim-offender relationship, offender sex, offender race, offender age, and total number of offenders (Regoeczi & Riedel, 1999). For L.A. homicide cases with complete information (N = 2071), the mean age of victims is 29.1.Where offender demographics, motive, and victim/offender relationships are missing, the victim mean age reaches a peak of 33.4. Excluding motive from the preceding pattern drops the mean victim age to 29.3 and it drops further ($\bar{x}$ = 27.9) when only offender age, race/ethnicity, and sex are missing.

The question that remains is whether the data are missing at random (MAR). If the data are MAR, "cases with incomplete data differ from cases with complete data, but the pattern of data missingness is traceable or predictable from other variables in the database rather than being due to the specific variable on which the data are missing" (Little & Rubin, 1987). In other words, for the data to be MAR, the probability that a particular variable will be missing data can depend on other observed variables, but not on the variable itself (when controlling for the other observed variables) (Allison, 2000).

There are a number of reasons to believe that the data on victim/offender relationships are MAR. Specifically, it is our argument that particular homicide cases tend to be missing data on victim/offender relationship, but that the cause of these missing data is not due to the variable itself. Rather, the missingness can be predicted by other variables in the data set, such as the clearance status of the offense. Where no offender has been arrested, information on the offender is missing, thus preventing a determination of the relationship of the victim to the offender. The results of the current analyses indicate that while some of the unknown victim/offender relationships likely involve strangers, the majority involves individuals known to one another (mainly friends/acquaintances, but also intimates and other family). The fact that a case remains uncleared, rendering the victim/offender relationship missing, does not therefore imply that the homicide occurred between individuals who were strangers to one another. In other words, that the victim/offender relationship is unknown does not depend on victim/offender relationship itself in the sense that its missingness is indicative of the homicide having involved a particular type of relationship, namely strangers.

What also makes it likely the data are MAR is that while the clearance rate has declined, the percent of police classified stranger homicides, although they may be underestimated, has remained relatively stable (Riedel, 1998). If missingness depends upon the character of stranger homicides, it would seem reasonable that they should covary with the percent of uncleared homicides, which they do not.

Finally, a recent multistate study on factors affecting homicide clearance rates found a variety of law enforcement and community characteristics that affected homicide clearances. For example, "a case was more likely to be solved when witnesses were at the crime scene and provided valuable information, including the circumstances of death, the motivation for the homicide, an identification of the offender, an identification of the victim, or the location of the

offender. When a neighborhood survey of the crime scene provided valuable information or the neighbors of the victim were interviewed, the crime was more likely to be solved. However, when friends of the victim were interviewed, the case was less likely to be solved" (Wellford & Cronin, 1999, pp. iii). It appears from this study that victim/offender relationships did not play a prominent role in arrest clearances. It is our position, then, that missing data on victim/offender relationships is a byproduct of cases remaining uncleared, but that the lack of clearance is not indicative of a stranger relationship.

How missing data should be handled depends to a great extent on whether the data are missing completely at random, missing at random, or nonignorable. It is therefore surprising how little attention has been paid to this issue, even in the few studies which seek to address missing data among homicide cases.[2] It should come as no surprise that information about homicides such as victim, offender, and offense characteristics are not missing completely at random. Yet the tendency of researchers to deal with missing data through the use of listwise or pairwise deletion, as is the common practice these days, seriously brings into question the findings of analyses based on what are almost certainly not a random subset of the full range of cases. While that might be considered the bad news, the good news is that it is likely the data are missing at random, providing access to a wide range of imputation methods which would not be available if the data were nonignorable. The EM algorithm is one such imputation method.

CONCLUSION

As the percentage of homicides cleared declines, the proportion of homicide cases for which offender-related variables--including victim/offender relationship--are unknown increases. With as many as one-third of cases missing information about how the victim and offender were related, it is very difficult indeed to draw any sound conclusions on the basis of such variables. The common practice of ignoring these cases is a seriously flawed approach to dealing with missing data, particularly given the finding that in all probability these data are not missing completely at random. The findings of the current research also show that it is a serious error to conclude that, because the victim/offender relationship is unknown, it is a stranger homicide. It may also be a false assumption to conclude that cases where the victim/offender relationship is unknown are proportionate to those which are known, although this appears to be a closer representation of reality than the former assumption.

Rather, the imputation results from the present study suggest that a number of the cases classified as unknown likely involve intimate partners, other family, and most especially friends and acquaintances, although they disproportionately involve strangers. Still, the addition of cases assigned to the stranger category to those originally classified as such increases the overall percentage of the stranger category approximately 5 %. Thus, even after reassigning all of the unknown victim/offender relationships to other categories, the notion that one has more to fear from those they know than strangers continues to hold. It is imperative that the public not

[2]One of the few exceptions is the work by Messner, Deane, and Beaulieu (2000). However, these researchers use terms such as "conditionally missing at random" which stray from the conventional terms used in the literature, their relation to which is unclear.

perceive an unrealistic fear of strangers based upon a false manipulation of statistics and unsubstantiated claims about just what these "unknown" cases are.

Our study raises a number of issues which respect to the quality of homicide research, which necessarily depends on the validity of the data on which it is based. Continued reliance on listwise and pairwise deletion as means of handling missing data means that as more cases are excluded due to missing values, the smaller will be the data set. While this may be more characteristic of homicide and criminal justice data than primary data, it introduces two kinds of research bias. The first kind of bias is, of course, trying to do research using offender related variables when these variables are missing substantial amounts of information. Point estimations, specific numbers critical to policy decisions, will be lacking in validity and reliability. It is our hope that homicide researchers and criminologists more generally will begin to embrace the use of missing data estimation models as other disciplines have done. There is nothing to lose and much to be gained, at the very least a substantial number of cases that would otherwise escape empirical analysis.

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MATCHING HOMICIDE REPORTS AND DEATH RECORDS IN CALIFORNIA

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ABSTRACT

The California Department of Health Services (DHS) Epidemiology and Prevention for Injury Control (EPIC) Branch had Supplementary homicide reports from the Department of Justice (DOJ) matched and linked with death records from DHS for 1990 through 1999. The matching was performed using Integrity (formerly known as AUTOMATCH)[1] probabilistic matching software. During the 10-year period there were 34,584 homicides according to DOJ records and we linked 32,163 (93.0%) of these to death records. The variables common to each data source were in good agreement in the linked file. This linkage process is accurate and useful for studying homicide in greater detail, capitalizing on the strengths of each file and minimizing their limitations.

BACKGROUND

California accounts for approximately 15.3% of the nation's homicides and 19.3% of the firearm homicides.[2] To understand homicide and its causes we need detailed data to identify risk factors. Death certificates in California are completed by the presiding physician at the time of death or, in the case of homicides, by the coroner or medical examiner who investigates all sudden and unexpected deaths. These records may have detailed information on the victim (cause of death, age, race, marital status, education level, etc.) but they do not contain information on the circumstances of the homicide. Local law enforcement officers investigating the case complete supplementary homicide reports. These reports have more detailed information on the circumstances of the homicide (suspect information, weapon type, precipitating event) but information for the victim may not be as complete. Combining these two data sources gives us the opportunity to utilize the strengths of each.

MATCHING PROCESS

The software Integrity (formerly known as AUTOMATCH) was used to perform the linkage. Integrity is a probabilistic linkage program that uses the selected variables and calculates a score for each pair of records. The variables used in matching were determined by testing the reliability of each variable to determine a match. For instance, if coded correctly Social Security number would have the highest reliability because it is a unique identifier for each person. The probability of a chance agreement of variables is computed by the program using a frequency analysis of both data sets for each variable, except social security number. If a variable is

[1] Mention of Integrity and Automatch does not constitute endorsement of products by DHS.
[2] Centers for Disease Control, National Center for Injury Prevention and Control, WISQARS (Web-based Injury Statistics Query and Reporting System) database.

effective at discriminating between matched and unmatched pairs, the agreement weight for the variable will be large and positive, whereas the disagreement weight will be large and negative.

During file preparation, names were standardized for cases where nicknames have been used: for example, Tim was changed to Timothy. Names were then transformed using NYSIIS (New York State Identification and Intelligence System) codes. All fields for NYSIIS names have a fixed length of eight characters.

All 170,011 injury deaths (ICD9 E-codes 800-999 for 1990-98, and ICD10 E-codes V01-Y98 for 1999) from DHS death records were available as potential matches to Supplementary Homicide Reports from DOJ. The match performed was a many-to-one matching. Each record on the homicide file was treated independently and was allowed to match to any death record. This means that more than one record from the homicide file can match to the same record on the vital statistics file. This was used because many of the names are similar, especially among Hispanics, and if the first match is incorrect, the record was not excluded from further passes.

Five blocking passes were used in the matching process. These passes, based on the reliability of selected variables, screened potential matches using the following criteria:

Pass 1 Social Security Number and Sex of victim
Pass 2 NYSIIS last name and first name
Pass 3 Year and month of incident (homicide file) and Year and month of death (death records) and Sex of victim
Pass 4 Year and month of incident (homicide file) and Year and month of injury (death records) and Sex of victim
Pass 5 NYSIIS first name and middle name
County of homicide and County of death

After each pass, scores were calculated on how well cases matched on the selected variables, and cutoff scores were assigned based on the distribution of these scores. If the pair did not meet the lower cutoff it went to the next blocking pass. If the pair's score was between the two cutoffs, it was deemed a "clerical pair" and would be manually reviewed. If it met the upper cutoff, it would go to the next stage to determine if it was a "true" match.

Matches were considered "true" matches if one of the following criteria were met:

1. Exact match on social security number *and* two out of three names match
2. Two out of three names *and* date of injury/death
3. Two out of three names *and* (date of injury/death within 10 days) or (county codes match or are contiguous and age within 10 years)
4. Exact match on date of injury/death *and* first or last name match *and* (county codes match or are contiguous or age within 5 years)

If the day in any date variable was unknown but the month and year match, we considered the two dates within 10 days of each other. Two out of three names were used

instead of a match on first and last name because on many records the names were in the wrong order.

RESULTS

From 1990 through 1999 there were 34,584 homicides according to DOJ reports. Of these, we linked 32,163 (93.0%) with death records. The death records agreed that homicide was the cause of death in 31,487 (97.9%) of the matched records. The remaining cases were coded as accidents (510), undetermined intent (108), and suicide (58).

Of the 1,160 records coded as justifiable homicide by a peace officer in the DOJ file, 519 (44.7%) were coded as legal intervention in the death records, 614 (52.9%) were coded as homicide, 20 were coded as accident, 4 as suicides, and 3 as undetermined intent. Of the 692 records coded as justifiable homicide by a citizen in the DOJ file, 673 (97.3%) were coded as homicide in the death records, 14 were coded as legal intervention, 4 as unintentional, and one a suicide. Of the 264 records coded as negligent homicide in the DOJ file, 175 (66.3%) were coded as homicide on the death record, 86 (32.6%) were coded as an accident, 2 were coded as undetermined intent, and one was coded as legal intervention.

Of the 23,850 homicide records in which the weapon was reported to be a firearm, 23,390 (98.1%) were coded as a firearm homicide on the matching death records. Of the 4,005 homicide records in which the weapon was reported as a knife or other sharp object, 3,640 (90.9%) were coded as a stabbing on the matching death records. Of the 1,393 homicide records coded as blunt trauma, 301 (21.6%) were coded as a homicide with a blunt object on matching death records.

Sex was in agreement in 99.7% of the cases. Race (White, Black, Hispanic, Asian/other) was in agreement in 92.7% of cases. Age was in agreement in 79.9% of cases and it was within one year in 93.0% of cases.

LIMITATIONS

The 7.0% of DOJ records that we could not match may very well be documented in DHS records but the discrepancy between matching variables was too wide to justify matching. Some of the unmatched records may not have had an available death record with an injury E-code. Care was taken to capture all matches by searching for matches in different years. For example, if an incident occurred on December 31, 1995, but the victim did not die until the next day, DOJ may record this homicide in their 1995 file where DHS would include it in their 1996 file. Also, normally we retain only death records of California residents in our files but for this project we obtained death records of non-California residents who were killed in the state as those victims would have a Supplementary homicide report filed with the DOJ. This allowed us to match 512 additional cases.

The matching process can take a great amount of time depending on the size of the data sets involved and how much subjectivity is desired. For instance, clerical cases are reviewed manually and setting the cutoffs too wide on the passes increases the number of clerical cases the reviewer has to review. For this linkage we only had 161 clerical cases and chose to discard all of them because few appeared to be actual matches and our methods would be easier to replicate in the future.

Additionally, because this is a many-to-one matching system, 69 death records were matched with two different homicide reports. We had to manually review these cases and select which match we wanted to keep in the file.

CONCLUSIONS AND RECOMMENDATIONS

Linking death records with Supplementary Homicide Report data can be useful for homicide surveillance. The two data sources described here are valuable on their own, but linked together the strengths of each can be utilized to study homicide. For instance, looking at death records alone would not tell us anything about the circumstances of the homicide. We would not know the relationship of the suspect, the events that precipitated the crime, or the specific weapon type. With homicide reports we could get much of the information surrounding the event, but the victim's data is not necessarily accurate or complete.

The comparisons reported in this paper of variables common to these two data sources are only the beginning of exploring this rich data set. We must evaluate these data to determine what information we still must incorporate to provide a truly comprehensive homicide file. We can use this data set to provide feedback to the source agencies (DOJ and DHS) so they can determine common discrepancies and try to correct them. These data are only valuable if utilized. Our next step is to disseminate the linked homicide file to researchers and the public via electronic file and an internet website.

DISCUSSION

Brian Wiersema: Wendy, since the imputation of randomness is based upon certain premises, how do you account for data missing-at-random?

Wendy Regoeczi: Randomly missing data are very different from missing data generally. There is a big difference between missing-at-random versus "non-ignorable" missing data. While a number of imputation models can be used with data that are missing at random, few can be used with non-ignorable missing data. However, there is good readon to believe that the data here are missing at random.

Brian Wiersema: I'm still not convinced that the can can be accurately arrived at through the use of missing-at-random since, frequently, we don't know enough about the particular factual circumstances of many homicides, such as with a "dead body in the street."

Becky Block: Regarding case clearance, I don't think many cases are cleared where the victim/offender relationship is not known. So what is the benefit, statistically, of knowing if a case is cleared for data imputation.

Marc Riedel: Even if a case is not cleared, victim information is obtained.

Dick Block: There are different kinds of clearance, both clearance by arrest, and clearance without the suspect in custody ("known, but flown"). In the latter category, police know the suspect, who is thus "cleared exceptionally" in another jurisdiction. The personal relationship between the victim and the offender is know, but the police cannot retrieve the offender.

Ronald Chilton: Can the 1991-95 data can be disaggregated?

Wendy Regoeczi: Yes.

Marc Riedel: As a "wrinkle" to the clearance issue, Chicago prosecutors have described anecdotally that they have difficulty obtaining jury convictions in domestic violence cases where younger women have killed their older husbands. Upon acquittal, the Chicago Police Department records such cases as "exceptionally cleared"(which are typically treated as "cleared by arrest").

Roland Chilton: Roger, can you produce your data by rate?

Roger Trent: Yes.

Laura Lund: The California Department of Health Services has used the data for Geographic Information Systems (GIS) research to break it down by geographic area, with very low resulting unknowns.

Paul Blackman: Is there a definition for "blunt trauma" as used in the study?

Roger Trent: No.

Vance McLaughlin: The coding of homicides as "self-defense" versus "justifiable" makes a big difference in the results, and there is benefit in being able to differentiate these categories.

Roger Trent: Agreed.

Question: Can your two data sources be combined with the ICPSR (Inter-University Consortium for Political and Social Research)?

Roger Trent: I'm think we'd be concerned about retaining the ability to control the integrity of the data if that were done.

John Jarvis: How is the NYSIIS related to the database-combining effort?

Roger Trent: NYSIIS was included as part of the Integrity program, which is very expensive.

Jacquelyn Campbell: Does the combined database contain information on whether the victim was pregnant.

Roger Trent: No, because that is not an item on the death certificate.

Catherine Barber: The California homicide file contains much more information than the national SHR file, because the California DOJ makes many more variables available to users.

Roger Trent: You're right.

Brian Wiersema: What fields have been suppressed for reasons of confidentiality?

Roger Trent: Name, address and Social Security Number. Only the zip code is available from the electronic file.

Becky Block: The zip code is not particularly useful information for researching about homicide victims or perpetrators.

Roger Trent: The zip code data can be linked with census track data, and then it provides some utility.

Marc Riedel: Homicide data can be linked between death certificates and the SHR, but I wonder whether a linkage could also be made to the medical examiner file?

Roger Trent: In California, there are many medical examiners at the local level, with no State Medical Examiner, and therefore the local medical examiner data are not coded on a master death certificate file.

Linda Langford: Based on my experience with the Massachusetts data file, I'd caution concern about the accuracy of the information in this area.

Roger Trent: Caution should also be used with California data; recording can be good in one county, but not in another, thereby compromising the state's aggregate data set.

Timothy Kephart: Can the address can be identified?

Roger Trent: No, it's not possible to get the address from the public use linked homicide file, because there are no unique identifiers that would all one to identify individuals in the database. It would require a separate death certificate abstraction study to get that information.

CHAPTER THREE

HOMICIDE VICTIMIZATION OVER THE LIFE COURSE

SEXUAL HOMICIDE OF ELDERLY FEMALES: LINKING OFFENDER CHARACTERISTICS TO VICTIM AND CRIME SCENE ATTRIBUTES[1]

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INTRODUCTION

The Federal Bureau of Investigation (FBI) consults regularly on the investigation of extraordinarily violent and unusual homicide cases. Although overall awareness of elderly victimization throughout the United States has greatly increased over the last decade, little attention has been focused on elderly female victims of sexual homicides and the offenders who commit these crimes. Law enforcement agencies are often faced with rarely seen and excessively violent crime scenes as they attempt to solve them. This in-depth study examines the characteristics of 128 elderly women who were murdered by 110 offenders as well as the victims' attendant crime scenes. An empirical analysis of crime scene attributes, victim characteristics (including severity of victim injuries), and offender demographics produces significant predictive information about offender characteristics that may assist law enforcement investigations of such cases.

Case 1

A 77-year-old widow was sexually assaulted and murdered in her bedroom. The medical examiner identified three separate causes of death. The offender strangled the victim into unconsciousness, severely fractured her skull using a nearby clock he removed from the bedroom dresser, then repeatedly stabbed her in the face, chest, and vagina with a butcher knife he obtained from the kitchen. A 20-year-old male living two blocks away was arrested.

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[1]This work represents a text draft of the audio-visual material presented at the 2001 HRWG Meetings held in Orlando, Florida. A revised version of this work appears in the May, 2002 issue of the *Journal of Interpersonal Violence*. Also, an earlier version of this work was presented at the American Society of Criminology meetings in California, November 2000. The viewpoints expressed herein are solely those of the authors and do not reflect the official position of the Department of Justice, the Federal Bureau of Investigation, or the University of Liverpool. The authors are particularly grateful to Dr. Alan Jacobson who offered editorial guidance on this manuscript. We also wish to thank both colleagues and anonymous reviewers for their detailed constructive comments offered on earlier drafts.

Case 2

A 19-year-old offender, while walking by the apartment of a 76-year-old woman at 2 a.m., noticed a light on and began peeping through her windows. He saw her sitting alone watching television. He smashed out the front door window, reached in, and unlocked the door. He blitz-attacked the victim, shattering her jaw as he knocked her unconscious to the floor. He ripped off her clothing, raped her vaginally, then anally, and finally assaulted her vaginally with an umbrella lying nearby. He used a piece of glass from the broken window to cut her throat. He returned to a friend's house covered in blood and told him he had just killed an "old lady." He was convicted and sentenced to life in prison.

Case 3

A 70-year-old woman was found dead, lying on her bed in a blood spattered bedroom of a rural farm house. She suffered 28 stab wounds to the face, neck, and chest. The offender had pushed her nightclothes above her breasts and spread her legs. She was nude except for the night shirt. After killing her, he placed a pillow over her face. No semen was located at the scene. Ten years later, investigators still pursue leads in this woman's death and her daughters are haunted on a daily basis because the offender remains unidentified.

Most law enforcement agencies in the United States seldom face the unenviable task of investigating the brutal sexual assault-homicide of an elderly female member of their community. However, this crime does occur and its prevalence may increase as the nation's population ages. While law enforcement agencies respond to violent criminal behavior on a daily basis, even the most experienced homicide investigator is rarely prepared for the extreme brutality and sexual degradation that is sometimes unleashed on one of its most vulnerable and fragile community citizens: the elderly female.

That an elderly woman has been viciously sexually assaulted appears, on its surface, to be incongruous with what the public at large and even most law enforcement officers associate with a sexual assault offense. Sexual assault, in the minds of many lay and professional people, is believed to be motivated by sexual arousal and desire on the part of the offender (Groth & Birnbaum, 1979). Rape and sexual assault are in fact distortions of human sexuality (Groth, 1978). When the victim is an elderly female, these distortions cause us to question the more traditional avenues of investigating these types of homicides. This perception can pose serious difficulties as law enforcement attempts to establish initial investigative directions for solving these cases.

Because of the relative infrequency of these cases and the lack of research in this area, investigators often encounter difficulties when trying to investigate a sexual homicide involving an elderly female victim.[2] Complicating this is a lack of knowledge with respect to offenders who perpetrate these heinous crimes. Empirical research, perhaps leading to investigative decision support systems, is needed to assist law enforcement in rapidly identifying and apprehending these offenders. Specifically, analysis and study of readily obtainable crime scene, victim, and demographic variables may be useful in supporting such goals. The research offered here examines cases of elderly female sexual homicide to identify patterns in the behavioral aspects of the victims, offenders, their interactions within the context of the crime, and to link offender characteristics to victim and crime scene attributes. Thus, the goal is to distinguish factors that are specific to these cases, and then to examine their usefulness in guiding the investigative efforts to identify these offenders. Before examining the elderly sexual homicide data, a review of the research surrounding the scope and nature of crimes against the elderly, with special attention to sexual assault and homicide, is necessary to insure a fuller understanding of these difficult cases.

CRIMES AGAINST THE ELDERLY

Both Bureau of Justice Statistic studies and the National Crime Survey reflect that crimes against the elderly tend to be more serious in nature than those against younger persons (Bureau of Justice Statistics, 1994). Older victims of violent crimes are more likely to be attacked by total strangers (Kennedy and Silverman, 1990; Muram, Miller, & Cutler, 1992) and are most likely to be victimized in their own homes. They are less likely to try to protect themselves during a crime and are more likely to sustain injuries. These findings are confirmed by numerous studies that discuss the general problem of victimization of the elderly and by specific research addressing violent offenses (Faggiani & Owens, 1999; Nelson & Huff-Corzine, 1998; Fox & Levin, 1991; Lent & Harpold, 1988; Antunes, Cook, Cook, & Skogan, 1977).

These studies also demonstrate that elderly women are inherently more vulnerable to crime than younger women in particular ways. First, they are more likely to live alone. Nearly 80% of elderly persons who live alone are female due in large part to increased risk of widowhood and longer life expectancy (Taeuber & Allen, 1990). Second, "vulnerability is related to physical size and strength; elderly females are less capable of fleeing or resisting a physical attack than a younger person (Nelson & Huff-Corzine, 1998, p. 135)." As women age they experience skeletal, neuromuscular, and other systemic changes (Davis and Brody, 1979). These age-related changes restrict mobility and reduce their ability to escape or defend themselves against an assailant. As Moen (1996) notes, this may be particularly true of the older members of the aged population (75 years and older) who are disproportionately female and live alone.

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[2]Sexual homicide is defined as "the killing of a person in the context of power, sexuality, and brutality with evidence or observations that include a sexual nature. These include: victim attire or lack of attire; exposure of the sexual parts of the victim's body; sexual positioning of the victim's body; insertion of foreign objects into the victim's body cavities; evidence of sexual intercourse (oral, vaginal, or anal); and evidence of substitute sexual activity, interest, or sadistic fantasy" (Ressler, Burgess, & Douglas, 1988, p. 1).

This notion of vulnerable victims is also characteristic of the routine activities perspective offered in criminology (Cohen & Felson, 1979). That is, considering the interaction of available victims, motivated offenders, and lack of guardianship may offer an understanding of how these incidents occur. Elderly women, perhaps as a consequence of widowhood, are more likely than younger females to lack the guardianship common to children and younger women with parents, boyfriends, and husbands, and thus more likely to be perceived by motivated offenders as suitable targets.

This vulnerability conception is further supported by the work of Longo and Gochenour (1981), which indicates that some rapists select elderly victims because of their vulnerability (see also Davis & Brody, 1979). Furthermore, the idea that predators often choose prey for particular reasons based on some set of criteria is not unique to criminal behavior. In nature, predators continually assess a victim's vulnerability (chance of successful capture and killing) and accessibility (likelihood of detection and deterrence) in the course of their daily activities (Boudreaux, Lord, & Jarvis, 2001). Our contending theory in these cases of sexual homicide is that offenders are no different and engage in similar decision-making assessments.

However, an abundance of definitive literature is lacking, perhaps largely due to an emphasis on broad categories of both violent and property offenses and an inability to adequately distinguish between crime against males and females. A thorough search of the literature found that any extensive focus on violence against elderly women was limited. However, some discussion of these few studies that were found is merited.

Sexual Assault of The Elderly Female

The sparse research literature relative to sexual assault of the elderly female reveals that these victims are much more likely to be injured or killed compared to other victims of similar crimes (Kerschner, 1976; Davis & Brody, 1979; Gerry, 1983; Pollock, 1988). Some studies examine rapists (Warren, Reboussin, Hazelwood, Cummings, & Gibbs, 1998; Hazelwood & Burgess, 1995), but few focus specifically on those who rape the elderly (Fletcher, 1977; Groth, 1978; Pollock, 1988; and Muram et al., 1992). Pollock (1988) conducted the only study to date that was found to contrast those who commit sexual offenses against older women with those who victimize younger women. His findings clearly identify predatory rapists who purposefully select older women. According to this study, when a rapist attacks an older woman, the rape or sexual assault is likely to be "a particularly brutal act largely motivated by rage or sadistic intent" (Pollock, 1988, p. 530). He also suggests that apparently motiveless violent attacks on elderly women may be cases of sexual assault.

Many elderly women are unaware of their vulnerability to sexual assault and perceive sexual assault as a sexually motivated crime, directed primarily at young and promiscuous women who somehow contribute to being selected as a victim through their actions and behaviors (Hazelwood, 1987; Groth, 1978). More recent research suggests that sexual assault is motivated by the need to express power or anger or a combination of both (Hazelwood & Warren, 1990, 2000; Pollock, 1988; Groth, Burgess, & Holmstrom, 1977). This power and anger may be expressed as a need to punish, dominate, and control the victim. The offender is rarely seen as seeking sexual gratification from his assaults. Consistent with this notion, Groth's (1978)

examination of case files of sexual assaults of older victims found that offenders use physical force, to include beating, stabbing, and killing their victims in 60% of the cases. Groth suggests that the elderly female represents an authority figure or is the actual woman over whom the assailant wants power. Sexuality is the method used to effect revenge or express his hostility and anger. Groth, like Pollock, notes that the sexual assault of older victims is often an exceptionally violent crime that is "more an issue of hostility than sexual desire" (p. 213). For the moment, however, consider the information noted above relative to sexual assaults and the following research findings relative to homicides involving elderly female victims.

Elderly Female Homicide

Homicide of elderly females is generally a rare phenomenon. According to the FBI, 15,553 homicides in the U.S. were reported to the police in 1999 (FBI, 2000). Of these homicide victims, 812 were determined to be elderly (60 years of age or older) and over half of this total (499) were identified as females. Elderly female homicides that became known to the police constituted just over 3% of all homicides in the U.S. in 1999 (FBI, 2000). According to the annual publication, FBI Uniform Crime Reports (UCR), this percentage has been fairly stable over the last decade (FBI, 1990-1999). Although homicide may result from a confrontation between an offender and a victim in the course of other crimes, most homicide studies do not focus exclusively on the elderly. Many of the studies cited in this research are largely limited to aggregate analyses regarding both male and female victims with little attention to the importance of both qualitative and quantitative analyses. Conversely, the studies that have examined homicide of the elderly concentrate on the types of homicide which, in most cases, do not exhibit an identifiable sexual component.

Elderly Female Sexual Homicide

There are many difficulties in obtaining reliable statistics relative to the number of elderly sexual homicides. One of the most problematic of these involves the identification of the offense as a homicide without note of the subordinate offense of rape or sexual assault (Brownmiller, 1975).[3] Other difficulties include lack of necessary investigation to identify the sexual behavior, poor communication between investigators and other personnel relative to understanding the sexual nature of the offense, and classification errors in official data entries (see Burgess, Hartman, Ressler, Douglas, & McCormack, 1986). While official statistics are elusive, one demographic fact is inescapable: census data show that an increasing proportion of the baby boom generation will be aging into the elderly population in the coming years (U.S. Bureau of Census, 1999). Coupled with the fact that people are living longer, this suggests that the incidence of violent victimization to elderly females may also increase. This is further evidenced by the fact that nearly 75% of persons over the age of 65 are women (U.S. Bureau of Census, 1999).

[3]This hierarchy rule of official reporting may be more common in historical Uniform Crime Reporting data than will be so in the future. The redesigned Uniform Crime Reporting Program known as the National Incident-Based Reporting System (NIBRS) suspends such rules and allows for full reporting of collateral offenses (see Chilton & Jarvis, 1999a, 1999b).

As with all criminal behavior, examination of any factors that may assist law enforcement in rapidly identifying and apprehending responsible offenders and protecting potential victims has merit. Additionally, since cases of the type described here are generally uncommon, law enforcement must be cognizant of and utilize the most effective investigative tactics and strategies available when such cases occur.

From a practitioner's perspective, the current body of knowledge regarding elderly female sexual homicide is derived principally from experiential patterns observed by homicide investigators. Their experience and collective training have helped them form a consensus regarding these kinds of cases. In particular, it is believed the age of the victim and offender appear to be quite disparate. That is, elderly victims are most often killed by younger offenders. The typical intraracial nature of violent crime seems to be conditional in these cases, that is, the race of the offender seems to be dependent on specific case factors rather than on the general expectation that an offender is the same race as the victim. The excessive violence exhibited in a number of these cases, the excessive injury that results from this violence, and a perceived ambiguity between burglary or robbery and sexual homicide as motivations are attributes that may be distinct from other violent crimes. To further investigate these contentions, as well as for the reasons stated earlier, cases of elderly female sexual homicide are examined.

DATA AND METHODS

Data were collected from two sources. First we examined the data available from the Supplementary Homicide Reports (SHR) as collected by the FBI Uniform Crime Reports from 1976-1999. These data served to provide a brief statistical description of the 604 cases that were identified during that period. However, many details of the crime scene, the nature and extent of victim injuries, and similar case attributes were not available from the SHR. Therefore, we turned to the ongoing data collection efforts of the National Center for the Analysis of Violent Crime (NCAVC) to acquire data on incident, victim, and offender details in cases of this nature that are not available in the SHR. This NCAVC data, therefore, serves as the principal data source for the research conducted here. The NCAVC case data reflecting the types of cases examined here were identified through various sources. Cases were identified through the FBI's Violent Criminal Apprehension Program (VICAP), brought forward by law enforcement through their participation in the FBI's National Academy Training Program, and through the operational activities of the FBI's NCAVC. The cases represent submissions from 30 states with California, Georgia, Washington, Florida, New York, New Jersey, and Texas providing a large number.

These sources identified 128 solved cases involving a female, 60 years of age or older, who was determined to be a victim of a sexual homicide.[4] The 110 offenders in these cases have been convicted and are each responsible for at least one sexual homicide of an elderly female.[5]

[4]One 55 year old victim was included because she was found to be the victim of an offender who specifically targeted elderly females for sexual homicide. Despite this victim's age, she had the physical appearance of a significantly older woman.

[5]One offender was positively identified through DNA analysis but fled to Mexico to avoid apprehension.

Following Burgess et al. (1986), this study involved a comprehensive review of the behavioral and psychological details of the 128 sexual homicides through analysis of the offenders' physical, sexual, and, when known, verbal behavior with the victim (see also O'Toole, 1999). This also includes a complete study of the victim, a thorough evaluation of the crime scene, and an in-depth investigation of the nature and scope of the interactions between the victim and the offender.

These records were very comprehensive and usually contained investigative, autopsy, and forensic and evidence analysis reports, crime scene and autopsy photographs, diagrams, sketches and maps, victimology information, and offender background, as well as any confessions or admissions by the offender. Psychological evaluations of the offender were provided in a number of the cases. Additionally, investigators who worked on these cases were contacted to clarify or provide Supplementary information not identified in the police reports.

Clearly, for both statistical and methodological reasons, it would be impossible to fully examine every aspect of these incidents with the relatively small number of cases available. Nonetheless, examination of the data was conducted in two stages. First, the descriptive information available from these incidents was examined in an effort to fully depict the relative frequencies of specific victim, offender, and offense attributes that comprise the behavior evident in these cases. Typical variables examined included, but were not limited to, demographics, injury, weapon use, etc. Through this analysis, links between the attributes are suggested.

Second, for the purposes of this research, we narrowed our focus to four dependent variables: race of offender, age of offender, relationship of victim to offender, and distance of offender's residence (in blocks) from that of the victim. These dependent variables were selected for analysis because these attributes are most likely to assist law enforcement investigators confronted with solving such cases (Safarik, Jarvis, & Nussbaum, 2000). Each dependent variable was then examined separately using logistic regression models. Particular attention was given to the degree of probability to which each independent variable could contribute to the explanation of variance in the dependent variable. The set of independent variables represent crime scene and victim characteristics, and specific offender behavioral attributes.

RESULTS

Initial analyses of the SHR data revealed 604 cases reported to law enforcement over the 24-year period.[6] These data associated with these SHR cases showed 81% of the victims to be White: offender race, when known, to be approximately 45% White and 55% Non-White; predominant use of personal weapons (hands, fist, and feet) rather than firearms (2.8%), and, when it could be established, a stranger was most often, 54% of the time, found to have been the

[6]The SHR data, while limited in investigative case details, does provide an opportunity to examine trends. Examination of the reported cases since 1976 suggest a marked decline in the number of elderly female sexual homicides that come to the attention of law enforcement by the late 1990s. However, as we have noted, this statistical data must be viewed with caution as it is not uncommon for sexual behavior in homicide cases to sometimes remain unidentified or undetected until much further investigation.

assailant. Further analysis of the circumstances of these incidents reported in the SHR showed that 92% of the cases involved a rape of the victim with just 8% involving some other sexual offense. Finally, the age of the offender was found, on average, to be 27 years. While these demographic results are useful for describing the overall nature of these cases, virtually no further detailed investigative information about these cases is available to explore potential relationships among crime scene, victim, and offender attributes. Therefore, analyses of the NCAVC data were undertaken to extend the demographic results available from the SHR.

Analyses of NCAVC case data examined the descriptive statistical properties of all candidate variables to be included in the analysis. These results as shown in Table 1, are largely consistent with findings from the SHR, and suggest the average offender was more likely Non-White, aged 25 or older, lived within six blocks of the victim, and was not known to the victim. These demographics depict an average offender in these data; however, it is important to note that variation in these attributes was also evident as shown by the standard deviations in Table 1.

The Offenders

The offender population included 48 White (44%), 46 Black (42%), 14 Hispanic (13%), and 1% Others.[7] Of note is the absence of Asian offenders. The offenders range in age from 15 to 58 years old. Blacks offended interracially 77% of the time, Hispanics 80%, and Whites only 4%. Fifty-six percent of the offenders lived within six blocks of the victim, with nearly 30% living on the same block. Eighty-five percent of Hispanic offenders lived within six blocks of the victim. Overall, 81% of the offenders travelled to the scene on foot. Ninety-three percent of Blacks and 85% of Hispanics were on foot.

The offenders in many respects were found to be quite similar. Ninety percent had criminal records, with burglary (59%) making up the highest proportion. However, property and violent offenses were found to be approximately equally represented among those with criminal histories. It should be noted that just 21% were found to have sex offenses in their criminal histories, a key point for law enforcement when considering the background of potential suspects. In terms of their employment skill levels, 93% were unskilled, with nearly 70% unemployed. Ninety-three percent of the offenders had 12 years or less of formal education,

[7]While comparable national estimates for offenders are not collected, arrest information by race is available through the FBI Uniform Crime Reports. Examination of these data show more involvement of Whites (53%) among all arrestees for murder/non-negligent manslaughter. Similar involvement of other races (47%) was found. Caution should be taken relative to these UCR data, however, since this information reflects all homicide arrests rather than just those committed against the elderly. Contrasts are further clouded by the inability of these data to show which of these cases may have involved a sexual component to the crime. The SHR analysis, however, was consistent with the demographic composition reported here.

TABLE 1. Descriptive Statistics for Dependent and Independent Variables

Variable***	Percentage (of cases)	Mean	S.D.
Offender Race	59% Non-White		.49
	41% White	.41	
Took Items	69% Took Items		.45
	26% No Items Taken	.72	
Neighborhood	57% Primarily White		.50
Composition	42% Less than 80% White	.58	
Offender Age	43% Between 15-24 Years Old	1.60	.50
	57% 25+ Years Old		
Victim' State of Dress	5% Fully Dressed	3.09	7.91
	77% Partially Nude		
	16% Nude		
Injury Severity Score	(Range from 1 to 6)	47.4	16.93
Offender Distance	54% Within 6 Blocks		
	39% More than	.42	.50
Homicide Injury Scale	(Range from 25 to 75)		
Neighborhood	(see above)	4.58	7.87
Composition		.58	.50
Offender Knew Victim	52% Knew Victim		
	42% Did Not Know Victim		
Victims Body Left	57% Uncovered	.55	.50
	33% Covered		
	9% Altered	1.02	5.78
Method of Entry	56% No Force Used		
	37% Force Used	.40	.49
Time of Day	66% Between 8pm and 8am		
	22% Between 8am and 8pm	.20	.13

***Scaling for the above variables is as follows:
Offender Race: 0= non-White; 1= White
Offender Age: 1= Between 15-24 y.o.; 2=Over 25 y.o.
Offender Distance (from Victim's Residence): 0= 6Blocks or Less; 1= More than 6 Blocks
Offender Knew Victim: 0=Victim Unknown to Offender; 1= Victim Known to Offender.
Took Items(from crime scene) o=none taken; 1=items taken.
Neighborhood Composition: 0= 79% or less White; 1= 80% or more White
Victim's State of Dress (when found at crime scene: 1=fully dressed; 2=partially dressed, 3=nude.
Injury Severity Score (ranges from 25-75) and Homicide Injury Score (ranges from 1-6): See Text.
Victim's Body Left (at Crime Scene) 0=uncovered; 1=covered; 2= altered.
Method Of Entry: 0=no force;1=forcible entry.
Time of Day: 0= 2001-0800 hrs.; 1= 0801-2000 hrs.

while 19% of that group had 8 years or less. Of those who attended high school, the majority had spotty attendance records and poor academic performance. Many simply dropped out after a couple of years. Ninety-three percent had a history of substance abuse, with no race or age trends noted. The drug abused most often was alcohol (85%), followed by marijuana (54%), and cocaine (44%).

Finally, 45% of the offenders confessed to the crime subsequent to their arrest while 19% made some kind of an admission relative to the crime yet continued to deny responsibility for the homicide. In terms of racial differences, Whites were observed to have confessed nearly twice as often as Blacks, while Blacks made some sort of admission more than twice as often as Whites.

The Victims

Analysis of the victims revealed several important observations. The mean age was 77 years. Although the victim population was disproportionately White (86%), both Blacks (9%) and Hispanics (4%) were also victimized. Similar to the offender data, Asian victims were rare: only a single Asian victim was identified. Ninety-four percent of the victims were killed in their own residence. While 14% of the victims had lived in their neighborhoods from 4 to 9 years, 73% had lived there at least 10 years, and many had lived there substantially longer. Contributing to their vulnerability, 81% of the victims had no additional home security beyond locks normally found on doors and windows.

Qualitative analyses of these cases suggests the possibility that variation in the degree of injury suffered may be a useful measure to analyze offender behavior. In an effort to identify a way these cases could be compared using the severity of the victim's injuries, a scale was created to quantify the severity of those injuries directly related to the cause(s) of death. This scale, termed the Homicide Injury Scale (HIS), draws on available medical examiner data and ranks injury severity from internal injuries only (scored 1) to multiple excessive external injuries with multiple causes of death (scored 6). Not relying solely on this convention, a second measure, the Injury Severity Score (ISS), is also utilized by adapting an injury scale developed by Baker, O'Neill, Haddon, and Long (1974). The ISS is currently used by the Centers for Disease Control and Prevention (CDC).[8] Both of these derived measures, HIS and ISS, were then applied to the victim data. It should be noted that the correlation between these measures was determined to be .77. Mean injury levels were 4.6 and 47.4, respectively and reflect more rather than less severe injury. These measures were then used in subsequent analyses in an effort to further the examination of offender characteristics.

[8]Original scoring is based on location and severity of the injury on the body with scores ranging from 1 being minor to 6 being unsurvivable. Modifications to this scoring scheme were required when coding cause of death injuries in homicides with resulting minimum values of 25 (a single body region sustaining a critical/fatal injury and a maximum of 75 (at least three body regions receiving critical/fatal injuries). A full discussion of the original scoring scheme can be found by in Baker et al. (1974, 1976) and Yates (1990). The authors are continuing work examining the merit of scoring injuries in homicides and further details on the scoring scheme adopted here are available upon request.

Turning to cause of death (COD) determinations, strangulation (63%) was found to be the most frequent, followed by blunt force trauma (38%). Death by a firearm (1%) was the least frequent. Variations in this pattern by race were also examined, but no significant differences were found.

The Incidents

Some of the limited findings relative to violent victimization of the elderly were also found in these data. In particular, there are some consistencies in the dynamics of the victimization. Forty percent of the offenders gained entrance through unlocked doors or windows while 20 % were freely admitted to the residence. Close to 40% used force on a door or window to gain entry. Of White offenders, 38% entered through unlocked windows or doors, and 36% gained entry through admittance by the victim, or by the use of a ruse or con scheme. Of Black offenders, 48% used force, while only 10% were admitted by the victim through use of a ruse or con. White offenders were either admitted by the victim or used a ruse/con almost four times as often as Black offenders. In contrast, Black offenders were nearly twice as likely as White offenders to use force to gain access to their victims.

Analysis of offender behavior at the crime scene indicates that 77% of the offenders brought nothing with them to the scene. When they did bring something, the items consisted mostly of weapons (10%) or tools (8%). In contrast, they removed property 72% of the time, most small easily accessible items such as cash and jewelry. Offenders left the body of the victim uncovered 57% of the time. White and Hispanic offenders were most likely to leave the victim uncovered (64%), in essence, discarding her body where they last interacted with her. Black offenders (43%) were more likely to cover the body, while White offenders (21%) were least likely. The approach used by 82% of the offenders was found to be a blitz-attack (the immediate and overwhelming use of injurious force to physically incapacitate the victim). Nearly 70% killed their victims between 8 p.m. and 4 a.m., with the greatest percentage (39%) occurring after midnight.

Offenders were found to have sexually assaulted their victims vaginally (65%) and anally (24%). Black offenders sexually assaulted both vaginally (71%) and anally (29%) more often than White offenders, at 58% and 16%, respectively. Hispanic offenders (n=14) assaulted anally 36% of the time, more often than either Blacks or Whites, but the significance of this finding is hampered by consideration of the small sample (n=5). Overall, these offenders inserted foreign objects into the victim's body 22% of the time, with White offenders responsible for just over half of those cases. Of note, more than half of all foreign object insertion was perpetrated by offenders under 24 years of age.[9] Finally, semen was identified in only 48% of the cases, with no differences noted for race or age. Sexual activity, without the presence of semen, was noted in the remaining 52% of cases. This sexual activity, in addition to vaginal, anal, and oral assault,

[9]This corresponds with the analysis of Ressler et al. (1988) which suggested sexual homicide offenders who engage in foreign object insertion do so as a form of sexual substitution or sexual exploration that may correspond with a sexually inadequate or immature offender. Such a description would suggest a younger offender as found here.

included fondling the sexual areas of the body, foreign object insertion, and posing the victim to expose sexual areas, among others.

Linking Offender Characteristics

These results provide a baseline for judging the degree to which various independent variables may increase the likelihood of accurately assessing offender characteristics. In more complex analyses, following Warren, Reboussin, Hazelwood, Gibbs, & Trumbetta (1999), logistic regression models were employed to examine the performance of various independent variables in predicting four offender characteristics as shown in Table 2 (offender race, offender age, distance from offender's residence to victim's residence, and victim-offender relationship). The percentage correctly classified in these models represents the degree of accuracy that was obtained using the indicated independent variables. Our results are encouraging, with each model resulting in about 60-70% classification accuracy. Particular attention should be given to the improvement of prediction accuracy that resulted from inclusion of crime scene or victim attributes as explanatory variables. Using this approach, the model classification accuracy and performance of various independent variables for the demographic attributes in question are shown in Table 2.

Our results demonstrate that by considering the independent variables shown in Table 1, of items taken from the crime scene and neighborhood composition, the ability to predict offender race increases. Prediction likelihood of an offender's race increases from .60 (not reported in the table) to .69. Thus, determining the racial homogeneity of the neighborhood where the crime took place increases the odds by 5.5 of correctly predicting offender race. Although other candidate variables and diagnostics (including autocorrelation, specification errors, multicollinearity, etc., as in all analyses in Table 2) were examined, this model was found to be adequate for predicting offender race. A similar analysis of offender age improved classification accuracy from .57 to .66. The independent variables of the victim's state of dress (clothed, unclothed, etc.) and the Injury Severity Score (ISS) were found to have significant influence on predicting the offender's age category.

Analysis of the distance between the offender's residence and the victim's was also conducted, with the independent variables of neighborhood composition and the Homicide Injury Scale (HIS) improving classification accuracy from .57 to .72, or approximately 25%. This suggests that the proximity of the offender's residence to the crime scene is significantly influenced by the racial homogeneity of the neighborhood. interracial offending of Blacks against Whites (77%) occurs more in heterogeneous communities. White against Black offending was found to be virtually nonexistent in heterogeneous communities. Recognizing the intraracial nature of these crimes only appears to be applicable if the victim is Black. If the victim is White, the intraracial aspect of violent offending does not appear to be as germane.

TABLE 2. Logistical Regression Results For Dependent Variables of Interest[10]

OFFENDER RACE		
	B	Odds Ratio
Took items*	-.97	.38
Neighborhood Composition**	1.70	5.51
Constant	-.78	—
Chi square: 21.63**	69.4% corrected classified	
Adj. R^2 =.219		
OFFENDER AGE		
	B	Odds Ratio
Victim's State of Dress**	-1.90	.15
Injury Severity Score*	-.02	.98
Constant	.53	
—		
Chi square: 20.18* *	65.6% corrected classified	
Adj. R^2 =.196		
OFFENDER DISTANCE		
	B	Odds Ratio
Homicide Injury Scale**	-.30	.74
Neighborhood Composition**	1.23	3.40
Constant	.09	—
Chi square: 13.251**	72.3% corrected classified	
Adj. R^2 =.141		
OFFENDER KNEW VICTIM		
	B	Odds Ratio
Victim Body Left*	-.51	.60
Constant	.51	
—		
Chi square: 5.063**	61.0% corrected classified	
Adj. R^2 =.054		

* p<.10
** p<.05
For variable definitions, see Table 1

[10]In all analyses reported here, the predictors were entered as single blocks. Stepwise procedures yielded slightly different parameter estimates, but the overall fit of the models did not vary significantly.

Finally, an analysis of the relationship between the offender and the victim revealed an increase in classification accuracy from .55 to .61. The variable of how the victim's body was left at the crime scene (uncovered, covered, altered) had statistical significance in the prediction of victim-offender relationship. Stronger findings in this particular analysis may have been found if not for a lingering difficulty defining relationships between offenders and their victims as will be discussed later.

DISCUSSION AND CONCLUSION

Pollock (1988), among others, notes that there have been few studies that systematically examine those who commit sexual offenses against older women. This study responds to this scarcity of knowledge by examining sexual homicides of elderly women.

To understand the importance of these results, it is also necessary to look beyond the statistically significant findings and correlations and look at the other substantive findings that may be important for understanding these cases. Through an exhaustive and detailed examination of each crime scene, an attempt was made to relate the criminal behavior exhibited in these scenes with the known characteristics and behavioral patterns of the offender. Many of the descriptive findings here are also consistent with other studies that have explored violent victimization of the elderly (Faggiani & Owens, 1999; Fox & Levin, 1991; Kennedy & Silverman, 1990; Nelson & Huff-Corzine, 1998). While some of the observations of the data cannot be applied to all such cases (for primarily methodological reasons), there are others that may support law enforcement efforts to gain investigative direction.

This analysis reveals several points that merit further elaboration. The most important of these being: the comparison of the results to law enforcement's anecdotal beliefs, victim location and routine activities theory, defining stranger versus acquaintance, community composition and interracial offending, levels of homicidal injury, classifying sexual homicide offenders, and financial gain versus sexual/homicide motives.

First, despite the fact that the offenders in these cases are diverse in age and split relatively evenly between Black and White offenders (with a less significant contribution by Hispanic offenders), many aggregate demographic characteristics are found to be strikingly similar. These observations are consistent with the experience of investigators who have anecdotally described a violent offender of the elderly as a younger offender, assaulting the victim at or close to the victim's residence, living within close proximity to the crime scene, and generally unknown to the victim.

Second, elderly violent crime victims sustain their injuries at their residence anywhere from 82-100% of the time for sexual assault (Hochstedler, 1981 and Pollock, 1988, respectively), 52% for violent crimes overall (Antunes et al., 1977), and 34% for robbery of females (Faggiani & Owens, 1999). A similar result is identified here with 94% of these women killed at home. Even though only 56% of offenders lived within six blocks, fully 81% (higher for Blacks and Hispanics) initiated the assault by walking to the scene. This implies that a majority of the offenders had some pretense to be in the vicinity of the victim prior to the crime, thus providing

them an opportunity to initiate the assault on foot. While 14% of the victims had lived in their neighborhoods 4 to 9 years, 73% had lived there at least 10 years, and many substantially longer. This suggests that, in conjunction with longevity in their neighborhoods, these victims would be well known to many residents in the area as well as individuals who routinely engage in the activities of daily life there. Unfortunately, this longevity may have produced unrecognized risk to the victim. Rossmo (1999) suggests that motivated offenders may sometimes create "mental maps" of these neighborhoods when they identify potentially suitable victims. "Mental mapping" is the process by which an offender catalogues victim information in a mental “card file” to facilitate a return to that victim in the future (p. 89).

Third, relationship classifications of stranger and acquaintance are particularly problematic (Riedel & Rinehart, 1996). Stranger classifications are prevalent in widely-used national data sets like the UCR and the National Crime Victimization Survey (NCVS), but a gray area may exist between stranger and acquaintance classifications. Stronger findings in this particular analysis may have been found if not for a lingering difficulty defining relationships between offenders and their victims. Many offenders labeled as strangers may, in fact, be marginally acquainted with their victims. This acquaintance may have arisen out of a former service performed by the offender (gardening, lawn care, odd jobs, etc.), from common routine activities engaged in by the victim and offender (e.g., common bus stops, shopping areas, commuting patterns of the victim and offender), or other commonalities that brought them into visual contact, making them acquaintances by sight but more accurately classified as "apparent" strangers. Therefore, while stranger classifications were common in these data and are commonly found in many data sets relative to crimes of violence, it is theorized that this frequency may be overstated (see Safarik et al., 2000). Within this study, few crimes occurred between absolute strangers. This does not imply that a prior relationship existed between the offender and victim, but rather that the offender was aware of where the victim lived (prior to the crime), and perceived her to be alone and vulnerable.

Fourth, the paradigm of intraracial offending in violent crimes as identified in UCR data (FBI, 2000) has been observed for many years. However, intraracial offending patterns by these offenders appears to be dependent on specific conditional case factors. The most notable of these seems to be the homogeneity of the neighborhood. This result is not surprising because the racial composition of communities tends to be reflected in residential patterns. Offending patterns appear to be no different. This study reiterates the intraracial nature of offending in homogenous communities shown in existing experiential data (Safarik et al., 2000). In contrast, White victims of Black and Hispanic offenders live in neighborhoods characterized by investigators as transitional. These transitional neighborhoods were thought to have undergone a socioeconomic change from middle to lower class. Often accompanying such a change are other demographic transformations that result in social disorganization and increased criminal activity. The elderly may also experience emotional or economic issues that detract from their willingness to move to a different location. However, because these victims may be cognizant of changes in their neighborhood and sense more potential dangers as a result, they may also be aware of their vulnerability and more likely to take proactive steps to secure their residences. The intraracial offending pattern among White offenders, and the observation that Whites are nearly four times as likely as Blacks to be admitted by the victim, may suggest that because the offenders were the

same race, these victims were more easily lulled into a false sense of security and hence dropped their guard. No Hispanic offender either used a ruse or was admitted by the victim.

Fifth, most studies of homicide examine weapon use, or more broadly the COD, as a characteristic of homicidal behavior. UCR data consistently reveals that firearms are the leading cause of homicidal death in all age categories except children ages 1-4. Elderly victimization research confirms that firearms are the leading COD among the elderly. Death by strangulation is rarely seen, comprising only 4% of elderly homicide victims (Fox & Levin,1991). This is in marked contrast to the findings from this study. Firearms (1%) are virtually never seen while strangulation accounted for 63% of these victims deaths. Despite the extensive examination of weapon use and COD, little if any homicide research has examined the degree of injury. Most studies assume either no variation in injury since every victim suffered a lethal injury, or they consider only the COD. The level of injury exhibited in a number of the cases in this study was found to be excessive and is an attribute believed to be distinct from other violent crimes. As noted earlier, both Groth (1978) and Pollock (1988) found similar results in earlier studies. While the HIS and ISS metrics are somewhat different, both of these measures provide quantitative evidence supporting the differentiation of levels of homicidal injury as an attribute of these cases. The data examined here also reveals that many of these victims suffered multiple, severe, and excessive injuries. Many died from brutal and horrific injuries in excess of what would be necessary to cause death. This excessive violence is commonly referred to as *overkill* (Douglas, Burgess, Burgess, & Ressler, 1992, p. 254). As noted earlier, the mean for both injury metrics approximated the range of the scale synonymous with *overkill*.

Sixth, the work of Hazelwood and Douglas (1980), which offers a categorization of sexual murderers on a continuum from *organized* to *disorganized*, may have relevance here. Applying this typology, these offenders are found to be overwhelmingly consistent with the d*isorganized* typology. Additionally, more recent work by Hazelwood and Warren (2000) extends earlier work and establishes a new typology of *impulsive* and *ritualistic* offenders. The descriptive assessment of the *Impulsive* offender is remarkably consistent with the majority of the offenders in this study. Salfati (2000) and Salfati and Canter (1999) offer a model of homicide behavior that appears to provide empirical support for categorizing patterns or themes of behavior at the crime scene into either an *expressive* or *instrumental* style or combination of the two. These offenders and their crime scene behavior suggest consistency with the *instrumental* classification. The collective attributes of these offenders and their crime scenes, as found in Table 3, manifest the characteristics associated with the *disorganized, impulsive* and *instrumental* offender typologies. Such classifications may provide investigative direction to law enforcement.

TABLE 3. Contrasts of Incident Characteristics with Descriptive Typologies

Crime Scene[11] *Attributes*	*Disorganized*[12]	*Impulsive*[13]	*Instrumental*[14]	*Elderly Sexual Homicide Offenders*
Body disposition	Left at death scene Not transported Left in view Partially undressed or naked		Left at death scene Not transported Left in view Partially undressed or naked	Left at death scene Not transported Left in view Partially undressed or naked
Criminal sophistication **Planning** **Evidence consciousness** **Organization** **Protects identity**	Criminally unsophisticated Little or no planning- Spontaneous offense Leaves evidence at scene Scene appears random and sloppy with no set plan for deterring detection No measures taken to protect identity	Criminally unsophisticated Little or no planning- Spontaneous offense Leaves evidence at scene Scene appears random and sloppy with no set plan for deterring detection No measures taken to protect identity		Criminally unsophisticated Little or no planning- Spontaneous offense Leaves evidence at scene Scene appears random and sloppy with no set plan for deterring detection No measures taken to protect identity
Approach	Sudden violence to victim (blitz attack) to gain control	Sudden violence to victim (blitz attack) to gain control		Sudden violence to victim (blitz attack) to gain control
Sexual activity	Sexual activity at scene - usually postmortem		Sexual activity at scene	Sexual activity at scene - usually postmortem
Weapon	Weapon used from scene and often left		Weapon used from scene	Weapon used from scene and often left
Forensic Evidence	Leaves forensic evidence	Leaves forensic evidence	Leaves forensic evidence	Leaves forensic evidence
Cause of death	Most often death results from strangulation and blunt force trauma		Most often death results from strangulation and blunt force trauma	Most often death results from strangulation and blunt force trauma
Use of restraints	Minimal	Minimal		Minimal
Other activity			Property taken-financial gain	Property taken-financial gain
Level of force		Often "excessive" or "brutal"		Often "excessive" or "brutal"
Paraphilic behavior		Absence of paraphilic behavior (e.g., bondage or sadism)		Absence of paraphilic behavior (e.g., bondage or sadism)
Motivation		Underlying theme of anger		Underlying theme of anger
Offender Attributes				
Work history Skill level Employment	Poor work history Unskilled work		Unemployed	Poor work history Unskilled work Unemployed
Criminal History		Arrest history diverse and generally antisocial Depending on age, history will reflect a multiplicity of crimes with no specific theme	Criminal histories with both property and violent offenses Burglary or theft convictions	Arrest history diverse and generally antisocial Depending on age, history will reflect a multiplicity of crimes with no specific theme Criminal histories with both property and violent offenses Burglary or theft convictions
Intelligence	Lower intelligence			Lower intelligence Most have only some high school
Travel and search patterns	Lives or works near death scene	Travels shorter distance to offend Offends over smaller area		Lives or works near death scene Association with area Travels shorter distance to offend - half live within 6 blocks
Social Skills	Socially incompetent			Socially incompetent
Substance abuse		Abuse of alcohol		Abuse of Drugs and/or alcohol

[11]Although certain attributes under the three headings are shown by empty cells, this does not mean that these attributes are not applicable to that categorization. The attributes listed were only those identified in the literature.

Seventh, the literature on violent crime suggests that elderly women are simply the unfortunate victims of *non-violent* offenders, primarily motivated by financial gain, who have randomly targeted their residence for the commission of either a property crime (e.g. burglary) or robbery (Lent & Harpold, 1988; Nelson & Huff-Corzine, 1998; Fox & Levin,1991; Hochstedler, 1981; Faggiani & Owens, 1999; Falzon & Davis, 1998). In the process of committing this purported financial crime, the offender inadvertently discovers an elderly female. He then changes his primary motive resulting in him not only sexually assaulting, but murdering her as well. The observation that 72% of the offenders in this study removed something from the crime scene may appear on the surface to support earlier research. However, from both a behavioral and experiential perspective, such a scenario stands in stark contrast to what has been observed in detailed reviews of these cases. The suggestion of a financially motivated crime gone awry is contradicted by the observation that the preponderance of the behavior is directed at the victim in furtherance of not only the sexual assault but the effort required to kill her. Not only is the majority of the interaction occurring with the victim, but chronologically it is occurring first. The removal of property occurs *subsequent* to the homicide. Additionally, there was a lack of balance between the effort expended to sexually assault and murder the victim, and the subsequent search for and theft of property. The items taken were generally located after a cursory search in the immediate vicinity of the victim and consisted mostly of cash and jewelry. The theft of property was, in most cases, an afterthought. This was supported by forensic examination of the crime scenes, admissions to uninvolved third parties, and admissions or confessions to police.

Clearly, offenders can have more than one motive when they engage in a specific criminal activity. They can also change the motive, or add other criminal objectives that they had not thought of previously. Although this appears to be the case with some of these offenders, this study provides support contrary to the literature and suggests that the selection of these women was premeditated. The majority of the offenders fully intended to sexually assault and murder these women prior to the initiation of the crimes and these intents superceded their intent to steal. Supporting this interpretation, Groth's (1978) earlier work relating to elderly rape victims revealed that one-third of the offenders who sexually assaulted elderly women reported their intention was to physically injure the victim.

We have shown that empirical support for linking offender characteristics with victim and crime scene attributes has merit. The application to sexual homicide of elderly females was evident in this data set. While this study was limited to some of the basic elements of behavioral assessments of these types of criminals, other data collection efforts and analyses may yield different results (West, 2000; Muller, 2000; Salfati, 2000). Nonetheless, this effort shows specific support for the potential to identify offender characteristics from incident, victim, and crime scene variables.

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[12]This disorganization may be the result of youthfulness of the offender, lack of criminal sophistication, use of drugs and alcohol..."(Douglas et al., 1992, p. 128). The offenders in this study are usually characterized by at least one of these attributes.

[13]Hazelwood & Warren, 2000.

[14]Salfati, 2000.

The failure to carefully review and analyze all the behavioral interactions of elderly female homicides may contribute to at least some cases being improperly classified as non-sexual homicides without note of the subordinate offense of sexual assault. Consideration of the totality of the offense behavior, including the sexual components, rather than simply noting whether the victim was raped or semen was forensically identified, will likely result in more accurate classification of these cases as sexual homicides. The homogeneity of many of the crime scene attributes and the consistency with characteristics of the *disorganized, impulsive,* and *instrumental* offender should provide law enforcement a well-informed position from which to start their investigation. In addition, analysis of readily available victim and crime scene attributes can provide statistically significant contributions for discerning important offender characteristics.

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CLINICAL AND CRIMINOLOGICAL ISSUES OF NEONATICIDE

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ABSTRACT

Neonaticide is the killing of a child within 24 hours after birth. Based on a detailed search of international literature, forensic clinical practice, and several Dutch case studies, analysis is made of neonaticide as a forensic clinical typology. After a short historical introduction, the following comparisons are made: (a) between male and female perpetrators of neonaticide; (b) between offenders of neonaticide and of child murder in general; (c) between abortion and neonaticide. The consequences of the dark number for the biased clinical description and the criminological view of neonaticide are discussed.

DISCUSSION

Dick Block: John, what percentage of incidents were the offenders known in the study?

John Jarvis: The study included only those incidents that had been solved.

Kathleen Heide: Do you know what types of items were taken in the burglaries/sexual homicides?

John Jarvis: I'm not sure; in some cases it was not determinable.

Marc Riedel: What does COD stand for?

John Jarvis: "Cause of Death."

Vance McLaughlin: I would hypothesize that if you divide sex and age of victim by time to locate at the crime scene that the "time to locate" would be longer for elderly victims.

John Jarvis: That's probably right. It's associated with the guardianship issue--it may take longer for police to locate the body if the victim is living alone and no-one reports that the person is missing, or hasn't been heard of in a while. This also impacts on the likelihood of the homicide being solved.

Damon Muller: Do you know whether the offenders only targeted older women?

John Jarvis: About 10% of the offenders do not discriminate on the basis of the age of the victims. They would victimize both younger and older women as well.

Kathleen Heide: Why is burglary a secondary motive to homicide?

John Jarvis: The aim is not to burglarize the home. The motive primarily is sexual.

Jenny Mouzos: Is burglary an after-fact? In the Australian data, it is difficult to tease out whether the primary motive is the burglary or the sexual assault. Did the offender enter the victim's home to steal or to commit sexual assault? If the primary motive was to steal, was the sexual assault committed because the opportunity presented itself.

Avianca Hansen: Speaking strictly from a social service perspective, despite the young/old age disparity, the victim is still a female. Also, the fact that there has been no attempt to hide the body says something else.

John Jarvis: Many elderly sexual offenders do leave the body of their victim exposed. That is because their main concern is to "get the heck out." The literature suggests that where offenders cover the body that there may be some evidence of psychological dysfunction. However, I'm not

qualified to comment on this. Routine activities theory would suggest that the elderly are targeted because there is minimal guardianship. Prevention can be aimed at increasing social services to the elderly.

Steve Roth: It seems it would be important to make the distinction between burglary and sexual offense, because research could be used to justify the expansion of the DNA database, to include people arrested for burglary/non-violent offenses.

John Jarvis: Many criminal histories of violent offenders also include property/burglary offenses.

Steve Roth: There's nothing to inhibit them.

Tim Kephart: Interesting. Do the offending trajectories of burglars suggest that burglars jump to sexual victimization of the elderly, and then to homicide?

John Jarvis: If there's a history of burglary in the area, we wouldn't necessarily look for an offender with a sexual history. Not all burglars progress to become sexual predators.

Lin Huff-Corzine: Frans, what preventative effect could there be if the parent leaves their baby at the hospital and they are not legally charged? Baby farming?

Frans Koenraadt: Sure.

Steve Roth: Are you aware of the outcomes of investigation of the cases of multiple murders?

Frans Koenraadt: Five out of nine murders led to a charge laid against the offender. Infanticides differ from neonaticides, and sometimes infanticides are quickly mistaken for SIDS.

Jacquelyn Campbell: Neonaticides is defined as the death of an infant within the first 24 hours after birth?

Frans Koenraadt: The time period is arbitrary.

Jacquelyn Campbell: If an infant is abandoned, but found, it could have been a neonaticide. However, if the infant was found 2-3 days post-partum, statistics could be misleading if classified as an infanticide as opposed to a neonaticide.

Frans Koenraadt: The definition of neonaticide has been extended to one week after birth.

Mieko Bond: Neonaticide is not a recent phenomenon. In ancient Rome, there was state-sanctioned neonaticide, where mothers were required to give up their babies.

Roland Chilton: Did they prosecute the mother in these cases?

Frans Koenraadt: Yes.

CHAPTER FOUR

FEMALE HOMICIDE OFFENDERS

WOMEN HOMICIDE OFFENDERS IN AUSTRALIA
Research in Progress

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ABSTRACT

Despite popular public perception of women mostly killing a violent intimate partner, this paper outlines some of the preliminary findings of research in progress that challenges the stereotypical representation of women homicide offenders, and suggests that not all women who kill will kill a violent intimate partner. This research analyzes 11 years of homicide data collected as part of the National Homicide Monitoring Program held at the Australian Institute of Criminology. The preliminary findings suggest that women in Australia kill in a variety of circumstances and that an intimate partner is not the most common victim of a female offender. These findings also indicate that the specific examination of the scenarios of lethal violence by women, and especially lethal violence beyond the situations where a female kills her violent intimate partner, is chronically overdue.

INTRODUCTION

There is something about the extremity and abominable nature of the offence of homicide that has fascinated scholars and researchers for decades, and continues to do so. What perhaps is even more fascinating is the phenomenon of when women engage in this behavior, especially since such behavior defies all notions of femininity; "violence and femininity are understood as inconsistent" (Alder & Polk, 2001, p. 5). While the phenomenon in general may generate considerable interest, little is actually known about women who kill, apart from feminist examinations of women who kill an intimate partner from whom they have suffered extreme violence. However, not all women who kill do so under these circumstances, and not all female perpetrated homicides involve the killing of an intimate partner.

Most research has focused on women who kill a violent intimate partner, neglecting to examine in any great depth lethal violence that is directed at children, other family members, or females and males outside of the family circle. Apart from the fact that women are most likely to kill within the family, little is known about the scenarios of female-perpetrated homicide, and the circumstances that lead a female to engage in the most extreme form of violence. This critical void in the research leaves many questions unanswered, and subsequently offers little in the hope of policy formation and prevention.

from 1989/90 to 1999/00 METHODS

Data Sources

The present study of women as offenders of homicide analyzes data collected as part of the National Homicide Monitoring Program (NHMP) held at the Australian Institute of Criminology (AIC). The NHMP was established in 1990, and consists primarily of two main data sources: (a) Offence records derived from each Australian State and Territory Police Service, supplemented as necessary with information provided directly by investigating police officers; and (b) State Coronial[1] records such as toxicology and post-mortem reports.[2]

On an annual basis, the NHMP routinely collects information on 77 variables on all homicides coming to the attention of police services throughout Australia. Data are then arranged into three hierarchical Statistical Analysis System (SAS) data sets: (a) Incident file, which describes the case and its circumstances (for instance, location, time of the incident, status of investigation); (b) Victim file, which contains socio-demographic information relating to the victims, details relating to the cause of death, and type of weapon used; and (c) Offender[3] file, which relates to perpetrators or suspects, where one has been identified, and includes data on the socio-demographic characteristics of the offender, his/her previous criminal history, alcohol/illicit drug use, state of mental health, and the offender's relationship to the victim.

The data set of the NHMP used in the present study covers an 11-year period, from July 1, 1989, to June 30, 2000. Included in the data set are:

- 3,450 homicide incidents,
- 3,723 victims, and
- 3,783 homicide offenders.

It should be noted that because homicide incidents can involve more than one victim and/or offender, and because not all data are available for every case, the sizes of the files will differ.[4]

TRENDS AND PATTERNS

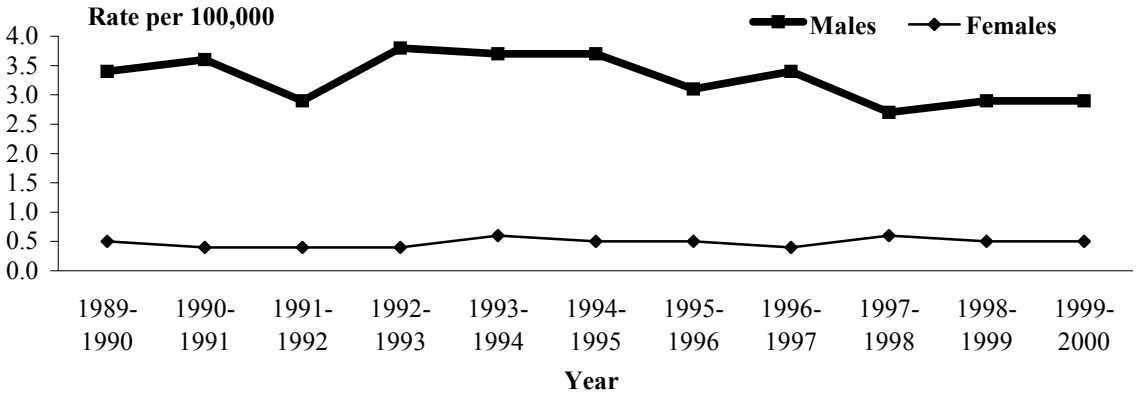
Despite the gaps, what is for certain is that in any study of violent criminal behavior there is one pattern that has stood the test of time--the sex differential (Pollock, 1999; Kellermann & Mercy, 1992). Universally, men commit more violent crime than women, and this is especially

[1] The law in each state and territory requires that all violent and unnatural deaths are reported to the Coroner.
[2] As of the July 1, 1996, additional information relating to whether the victim had consumed alcohol, or was under the influence of illicit/prescription drugs at the time of the incident, was also collected from coronial files from each state and territory.
[3] At all times, the term 'offender' refers to suspect offenders only, and not to convicted persons, unless otherwise stated.
[4] For further information on the NHMP, see Mouzos (2002).

true of homicide. During the 11-year period there were 3,783 homicide offenders in Australia, of whom women accounted for 12.7% (n = 479). The incidence of women as offenders of homicide has remained relatively stable, with an average of about 44 women homicide offenders per year in Australia. In terms of rates, the average homicide offending rate for women in Australia during the 11-year period was 0.5 per 100,000 females. For men, the average rate of offending was 3.3 per 100,000 males in Australia.

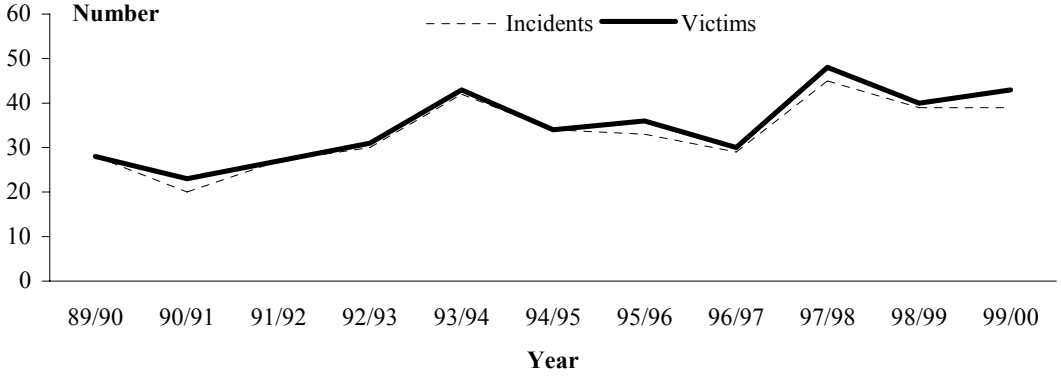
While males accounted for the majority of offenders of homicide in Australia, the trend in offending for males has also remained quite stable during the 11-year period examined in the study, ranging from a rate of 2.7 in 1997/98 to 3.8 in 1992/93 (see Figure 1). The 479 women in this study perpetrated 366 homicide incidents that resulted in the deaths of 383 individuals. However, there has been a slight increasing trend in the number of victims killed by a female offender (see Figure 2). In the most current year, 1999/2000, women were responsible for the deaths of 43 victims, compared to 28 victims in 1989/90.

FIGURE 1. Trend in Homicide Offending by Sex Australia 1 July 1989 – 30 June 2000



SOURCE: Australian Institute of Criminology, NHMP 1989 – 2000 [Computer file].

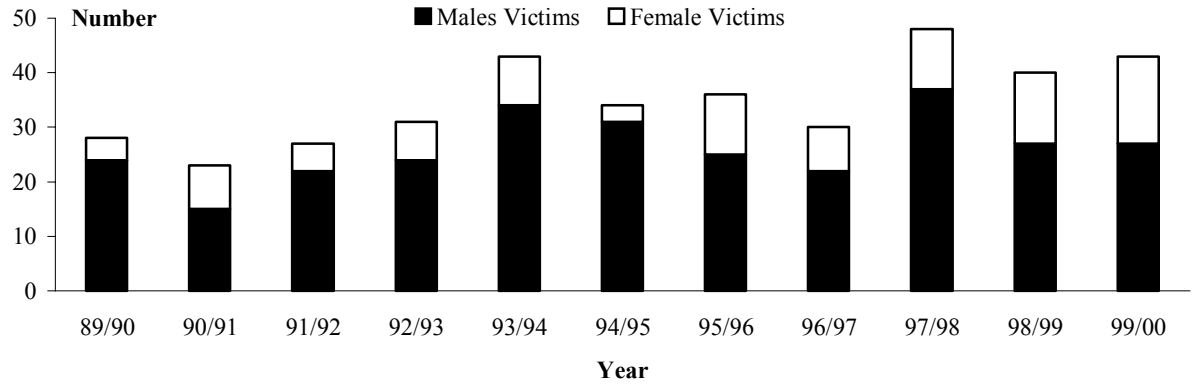
FIGURE 2. Yearly Number of Female Perpetrated Homicide Incidents and Victims, Australia 1 July 1989 – 30 June 2000



SOURCE: Australian Institute of Criminology, NHMP 1989 – 2000 [Computer file].

The mean age of the female homicide offender was 30.6 years with a standard deviation of 11.3 years. The youngest female homicide offender in the sample was 10 years of age, and the oldest was 80 years of age. The victim of the female homicide offender was predominantly male (75.2%) (Figure 3) with a mean age of 32.0 years (standard deviation 17.3 years). The average age of the female victim was 24.5 years, with a standard deviation of 24.1 years. Note also the slight increase in the number of women killing other women (Figure 3).

FIGURE 3 .Number of Homicide Victims Perpetrated by Females In Australia, 1 July 1989 – 30 June 2000

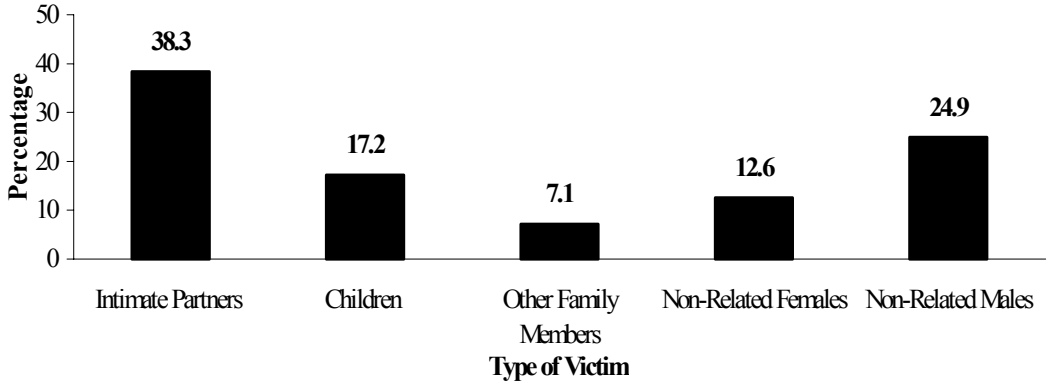


SOURCE: Australian Institute of Criminology, NHMP 1989 – 2000 [Computer file].

The analysis of the NHMP data revealed that female-perpetrated homicides in Australia can be analyzed on the basis of five main categories, which incorporate the victim-offender relationship, the sex of the victim, and the number of offenders involved (Figure 4). Women most often killed within the family unit (62.6%), with intimate partners accounting for the greater proportion of victims (38.3%). There were four cases where a female killed her female

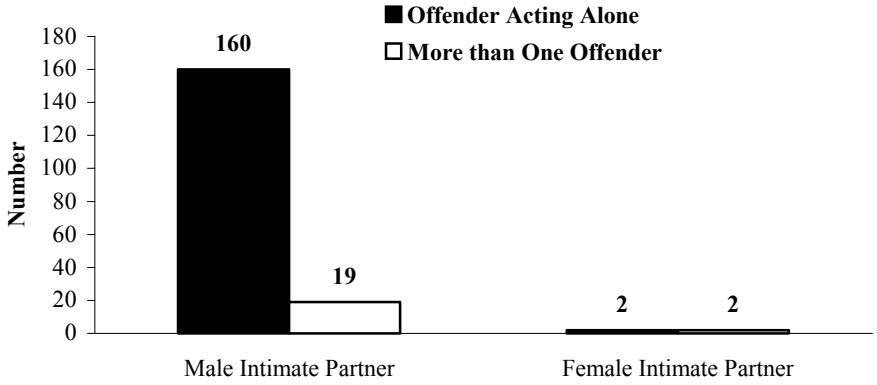
intimate partner. When she killed an intimate partner, she was more likely to be acting alone (90.5%), than with another offender (9.5%). Interestingly, of the four cases where a female killed her female intimate partner, in two of those cases she acted with other offenders (Figure 5).

FIGURE 4. Female Perpetrated Homicide in Australia, 1 July 1989 – 30 June 2000



SOURCE: Australian Institute of Criminology, NHMP 1989 – 2000 [Computer file].

FIGURE 5. Female Perpetrated Intimate Partner Homicide in Australia, 1 July 1989 – 30 June 2000



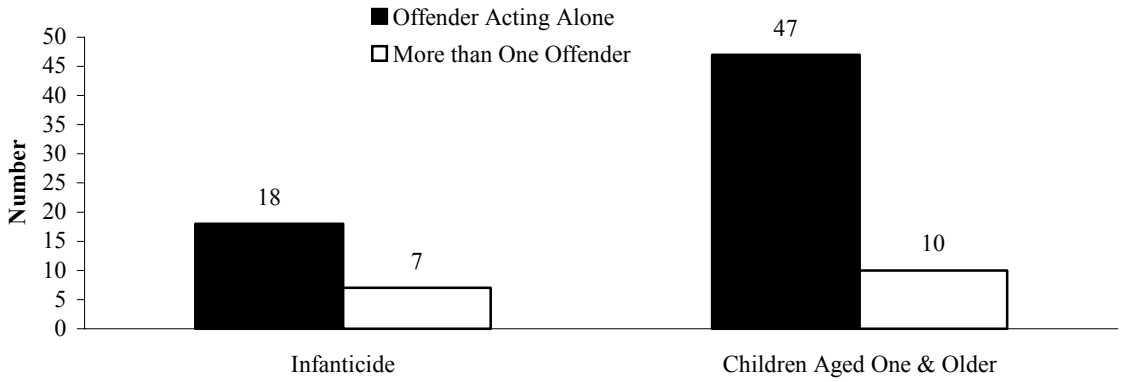
SOURCE: Australian Institute of Criminology, NHMP 1989 – 2000 [Computer file].

Other than intimate partners, children were the next most common victims within the family, representing 17.2% of all female perpetrated homicides. About 5% of child victims were aged less than 1 year of age, with most child victims aged one and older (11.9%). The filicides were further divided into whether the female was acting alone in the lethal event[5] or whether she was acting with other offenders (usually her male partner)(Figure 6).[6] It seems that when a female is involved in the death of her children, and is not acting alone, she is often implicated in

[5] N = 18 for victims aged less than 1; N = 47 for victims aged 1 and older.
[6] N = 7 for victims aged less than 1; N = 10 for victims aged 1 and older.

the murder because she failed to protect her child(ren) or failed to seek timely medical attention in order to save her child's life.

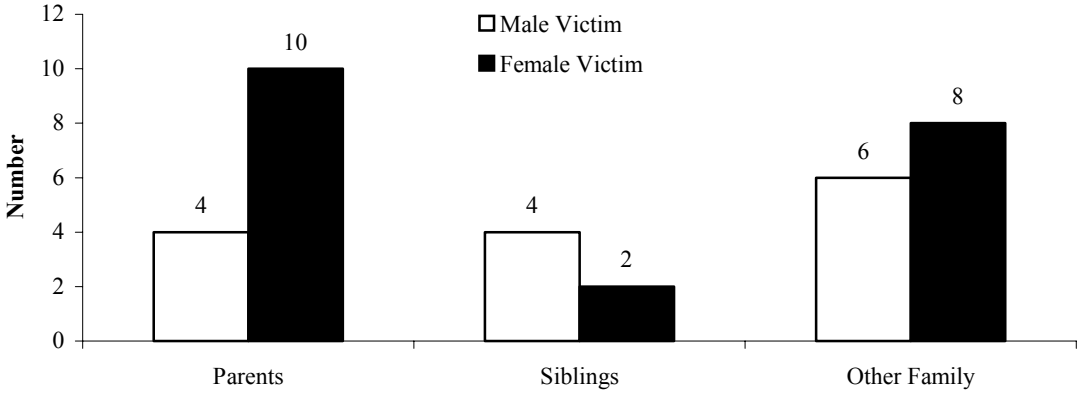
FIGURE 6. Female Perpetrated Child Homicide in Australia, 1 July 1989 – 30 June 2000



SOURCE: Australian Institute of Criminology, NHMP 1989 – 2000 [Computer file].

During the 11-year period under review, 7% of women examined in this study were responsible for killing other family members (excluding intimates and children). This figure comprises of the following: parents (2.9%), siblings (1.3%), and other family (2.9%) (Figure 7).

FIGURE 7. Female Perpetrated Familial Homicide in Australia, 1 July 1989 – 30 June 2000



SOURCE: Australian Institute of Criminology, NHMP 1989 – 2000 [Computer file].

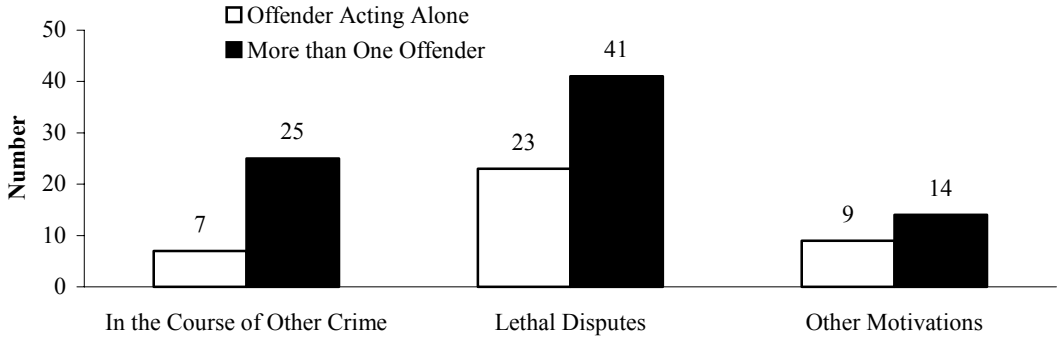
Women offenders of homicide in Australia were responsible for the deaths of 179 non-family members (37.5%). Sex was considered to be a major determinant in distinguishing between non-familial homicides committed by women, therefore the 179 cases where the female killed a non-family member were divided into two separate categories based on the sex of the victim. These cases were further divided on the basis of whether the female acted alone or with

other offenders. A separate examination of the homicides where the female acted with other offenders (who are usually male) is required in order to tease out the masculine influence on her behavior. One would expect that when a female acts with other males, the homicide is more akin to the types of homicides committed by males (see Mouzos 2000) (Figures 8 and 9).

FIGURE 8. Female Perpetrated Intrasex Homicide in Australia, 1 July 1989 – 30 June 2000

SOURCE: Australian Institute of Criminology, NHMP 1989 – 2000 [Computer file].

FIGURE 9. Female Perpetrated Intersex Homicide in Australia, 1 July 1989 – 30 June 2000



SOURCE: Australian Institute of Criminology, NHMP 1989 – 2000 [Computer file].

Intrasex homicides, that is, females killing other females not related to them, accounted for 12.6% of all female perpetrated homicides. In these cases, a slightly greater proportion of female offenders participated in the homicide with other offenders than alone (6.9% and 5.7% respectively). In contrast, when females killed non-related males (i.e. excluding intimates and family) (n = 119), they were more likely to do so with other offenders (8.2% versus 16.7%). Both female perpetrated intra- and intersex homicides were then subdivided into the following: (a) homicides that occurred during the furtherance of criminal activity, such as a robbery or what Polk (1994) refers to as "double victims" where the victim of a robbery for example also becomes the victim of a homicide; (b) homicides that were a result of some dispute over money, drugs, revenge, etc., including those termed by Polk (1994) as "'conflict resolution' homicides

where the killing resulted from the planned and rational intention to employ violence to resolve some form of personal dispute . . . between the victim and offender" (p. 25); and (c) homicides that resulted from some other motivation, including jealousy, revenge, and cases where the motivation is unclear. Included in this last subcategory will be those cases considered to be aberrant, or the rarest of the types of homicides committed by females (for example, "thrill kills" and "the vampire killers").

SCENARIOS OF FEMALE-PERPETRATED INTIMATE PARTNER HOMICIDE

Following the examination of trends and patterns of female perpetrated homicide, the study will seek to explore the various scenarios of when women kill in Australia. This section presents some of the preliminary findings of the qualitative "case study" analysis of female perpetrated intimate partner homicides, and presents a number of illustrative case studies of each type of theme/scenario identified.

The exploration of when women killed an intimate partner revealed that there are potentially four main scenarios that characterise her actions. These are described below:

Killing in Response to Domestic Violence

Case Studies One and Two are representative of the first scenario of female perpetrated intimate partner homicide. This scenario revolves around the cases when a female kills in response to years of domestic abuse from her intimate partner. In simple terms, these cases can be described as arising out of situations where the only option available to these women was "kill or be killed."

Case Study 1

The offender, 40, and the victim, 63, had been drinking heavily and arguing on the night of the incident. The two had been in a de facto relationship for almost 5 years, after meeting at a party. The relationship between the two had been a volatile one. The deceased had assaulted the offender often in the past, verbally, physically, and sexually. The deceased was served with Intervention Orders a number of times. He had been brought before the Magistrate's Court in relation to breaching an Intervention Order and for assaulting the offender, which had led to suspended sentences and an order to seek psychiatric treatment fortnightly. However, the relationship always resumed relatively quickly. The deceased was known to be a heavy drinker, whose problem with aggression worsened when under the influence. On the evening of the incident, there was tension between the two. The offender had just finished washing the dishes when the deceased approached her from behind. A struggle ensued between the two, with the deceased grabbing hold of the offender's arm. As the struggle continued, the offender grabbed a carving knife from the bench and stabbed the deceased (Case No. 038/95).

Case Study 2

When asked by police why she stabbed her husband, she allegedly replied: "It's very simple really--he said, 'I'm going to bash you senseless.' He's done it before. He broke my ribs and blackened my eyes, so I got a knife from the drawer" (Case No. 043/92).

Feminine Control: "If I Can't Have Him, No One Can"

Case Study 3 depicts the second scenario, which examines the cases where the female attempts to exert her control over the male when faced with the situation that her intimate partner is ending the relationship and ultimately rejecting her. In a number of these cases, love scorned soon turned to revenge.

Case Study 3

The victim and the offender had been involved in a de facto relationship for over 6 years. The relationship had been marred by violence, with the victim calling police on the Sunday before his death, after an argument with the offender, to issue an apprehended violence order against her. Realizing that their relationship was about to end, the offender set about to murder her partner. On the day of the incident, the offender picked up a video camera from her sister's home and later recorded an unexpectedly loving message to her children: "I love all my children and I hope to see them again," she said on the video. That night the offender took her children to dinner, which was again a little odd, and said to them, "I want it to be special." She then went to the victim's home, and while the events that followed are not entirely clear, it seems that the offender entered the bedroom and began stabbing the victim, who managed to get outside the front door before she dragged him back in. The victim died in the hallway with at least 37 deep stab wounds and injuries to almost all his major organs. Then, with the skills that the offender learned as a meat slicer at an abattoir, she dragged the victim's body into the lounge room and skinned him. "This was carried out with considerable expertise and an obviously steady hand so that his skin, including that of the head, face, torso, genitals, and legs was removed so as to form one pelt." The offender then removed the victim's head, and also sliced parts of his buttocks off. "The excised parts of [the victim] were taken by the offender and to the kitchen where after peeling and preparing various vegetables, she cooked [the victim's] head in a large pot so as to produce a sickening stew," Justice O'Keefe said. "The pieces which had been cut from [the victim's] buttocks were baked in the oven of the premises of the offender and the gruesome steaks were served with vegetables on plates for the son and daughter of the deceased, along with vindictive notes written by the offender. In sentencing the offender to imprisonment for life, Justice O'Keefe concluded: "I am satisfied beyond any doubt that such murder was premeditated. I am further satisfied in the same way that not only did she plan the murder but she also enjoyed the horrific acts which followed in its wake as part of a ritual of death and defilement. The things that she did after the death of [the victim] indicate cognition, volition, calm and skill. . . . Her evil actions were the playing out of her resentments arising out of her rejection by [the victim and] her impending expulsion from the [the victim's] home . . ." (*Regina v. Knight* [2001] NSWSC 1011 (November 8) (Case No. 082/00).

Deadly Disputes: The Role of Alcohol and Drugs

The third theme or scenario describes the cases exemplified by Case Study 4 that resulted from a dispute (sometimes relatively trivial in nature) between intimate partners, and was commonly precipitated by the presence of alcohol and/or illicit drugs.

Case Study 4

The victim, 32, and the offender, 27, were part of a drinking session at a "recreation club" with a number of friends. The victim left the room and returned after a short time period. When he returned, he accused the offender of stealing and drinking his beer. The offender denied the allegation, but an argument between the two ensued. The offender picked up the knife from the table and stabbed the victim. In summing up the case, the presiding judge commented: "There are several circumstances in your case, not the least of them, I think, is what appears to me to be the material to be explanation for this outburst of violence and the amount of liquor you have taken and the culture in which you are immersed, and I am not satisfied that another explanation for the killing was not your reaction to being called a thief and being shown up and perhaps embarrassed in front of your friends" (Case No. 298/92).

The Aberrant Cases: "Contract Killers", Drug Overdoses & Unknown Motives

The last scenario of intimate lethal violence covers the cases that are considered aberrant or what Polk (1994) refers to as "special cases." These cases include those where the female offender has sought the services of "contract killer" (n =3) (as illustrated in Case Study 5), assisted her partner to take a fatal dosage of heroin, and other cases that do fit neatly into the one of the other three scenarios described above (motives undetermined).

Case Study 5

The offender had offered money to another person to kill her husband, because she had stood to gain financially from his death. In the judge's summing up of the circumstances of the case, Justice Hampel said, "This is not a case of a desperate, trapped women or a case of highly emotionally charged circumstances in which people react and kill. This is a case of a plan to kill, when each of you [there were two offenders] had ample time to realise and reconsider what you were about to do" (*Regina v. Chatzidimitriou and Freeman* [1999], Victorian Supreme Court, 280). The victim was found in his car after it had been retrieved from over the side of a cliff. The victim had drowned.

CONCLUDING OBSERVATIONS

Overall, what these preliminary findings suggest is that female perpetrated homicides are not a monolithic act that can be explained by only examining one type of homicide. As the emerging scenarios suggest, there are many types of homicides by women and the disaggregation of these is an important step towards a better understanding of killings by women. Female perpetrators of homicide should not be treated as a homogenous group (Silverman & Kennedy, 1987).

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YOUNG WOMEN ARE OVERREPRESENTED AMONG HUSBAND-KILLERS

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ABSTRACT

When a woman kills her husband, it is almost always an unplanned action of self-defense against a battering husband or a last-ditch attempt to survive a batterer's tyranny. Younger, reproductive-age women are battered and killed by husbands at higher rates than are older, post-reproductive-age women. Because husband-killing occurs in the context of self-defense or as a last-ditch effort to survive, reproductive-age women should kill their husbands at higher rates than do post-reproductive-age women. I used a sample of 8,077 husband-killings to test this hypothesis. Results support the hypothesis. Discussion suggests directions for future work that can improve the identification of women at greatest risk for husband-killing.

INTRODUCTION

Conflict between spouses occurs in every marriage. Sometimes conflict can escalate to physical violence and even to murder. The circumstances in which a husband kills his wife differ from those in which a wife kills her husband. Wife-killing often occurs following a lengthy period of control, intimidation, and physical battery by a sexually jealous man (Daly, Wilson, & Weghorst, 1982; Daly & Wilson, 1988). Husband-killing rarely occurs as the endpoint of control, intimidation, and battery by a sexually jealous wife. When a woman kills her husband, it is usually an unplanned action of self-defense against a battering husband or a last-ditch attempt to escape the tyranny of a battering husband (e.g., Barnard, Vera, Vera, & Newman, 1982; Browne, 1987; Chimbos, 1978; Daniel & Harris, 1982; Goetting, 1987; Jones, 1980; Jurik & Winn, 1990; Totman, 1978; Wilbanks, 1983). For example, in Browne's (1987) interview study of 36 women who killed their husbands, a history of abuse by the husband was documented in all 36 cases. In Totman's (1978) interview study of 30 women incarcerated in a California state prison for killing their husbands, a history of abuse by the husband was documented in 29 cases. In a study of 56 women arrested for killing their husbands during 1982 and 1983 in Detroit, Michigan, Goetting (1987) found evidence that 54 of the women had been beaten repeatedly by their husbands. Jurik and Winn (1990) found evidence of a history of physical battery by a husband in 18 of 21 cases of husband-killing occurring between 1979 and 1984 in Phoenix, Arizona.

Across these studies, the battered women explicitly mentioned that they killed their husbands either in self-defense or as a last-ditch effort to survive. In the few cases in which no evidence could be found for a history of wife-battery, the women provided very different reasons for killing their husbands. In one case presented by Goetting (1987), for example, the woman killed her husband after surreptitiously securing several insurance policies on his life. In summary, the overwhelming majority of women who kill their husbands have been subjected to

a long history of physical battery, and usually commit the killing in self-defense or as a last-ditch effort to survive the batterer's tyranny.

Not all women are at equal risk for battery and death by a husband. Younger, reproductive-age women are battered and killed by husbands at higher rates than are older, post-reproductive-age women (Daly & Wilson, 1988; Shackelford, Buss, & Peters, 1999; Wilson, Johnson, & Daly, 1995). Because husband-killing typically occurs in the context of self-defense or as a last-ditch effort to survive, reproductive-age women should kill their husbands at higher rates than post-reproductive-age women. I obtained access to data on several thousand husband-killings to test the hypothesis that reproductive-age women kill their husbands at higher rates than do post-reproductive-age women.

Spouses tend to be similar in age, so that younger women tend to be married to younger men and older women tend to be married to older men (see Buss, 1994). Younger men commit the majority of violence and homicides (Wilson & Daly, 1985), so perhaps reproductive-age women are at greater risk for uxoricide or wife-killing as an incidental byproduct of marriage to younger, more homicidal men. Recent research refutes this possibility, finding that reproductive-age women incur greater risk of uxoricide than do post-reproductive-age women, regardless of the age of their husbands (Shackelford et al., 1999).

Nevertheless, if reproductive-age women kill their husbands at higher rates than do post-reproductive-age women, might this be because reproductive-age women tend to be married to younger, more violent men? This potential confound can be addressed in two ways. First, one can examine husband-killing rate as a function of the age difference between spouses. According to the hypothesis that reproductive-age women are at special risk for husband-killing, women married to older men should kill their husbands at higher rates than women married to same-age men and women married to younger men. This is because women married to older men are more likely to be of reproductive age than are women married to same-age men and women married to younger men. This pattern of results would indicate that higher rates of husband-killing by younger, reproductive-age women are not solely attributable to marriage to younger husbands.

A second way to address the potential confounding of husband's age with wife's age is to compare the husband-killing rates of reproductive-age women and post-reproductive-age women across two groups: women married to younger men and women married to older men. If reproductive-age women kill their husbands at higher rates than do post-reproductive-age women, and if this rate differential is not attributable to husband's age, than reproductive-age women should kill their husbands at higher rates than do post-reproductive-age women, regardless of husband's age.

In summary, the present research tests the hypothesis that reproductive-age women kill their husbands at higher rates than do post-reproductive-age women, and that these rate differentials are not attributable to husband's age. To test this hypothesis, I obtained access to a large database of husband-killings that coded wife's age and husband's age.

METHODS

Database

The United States Federal Bureau of Investigation (FBI) requests information from each state on criminal homicides. Supplementary Homicide Reports (SHRs) include incident-level data on every reported homicide, including the relationship of the victim to the offender, and the ages of the victim and offender. The database analyzed for the present project includes SHRs for the years 1976-1994 (Fox, 1996), providing information on 429,729 homicides. Husband-killing rates were calculated according to relevant population estimates provided by the United States Census (available from the author upon request).

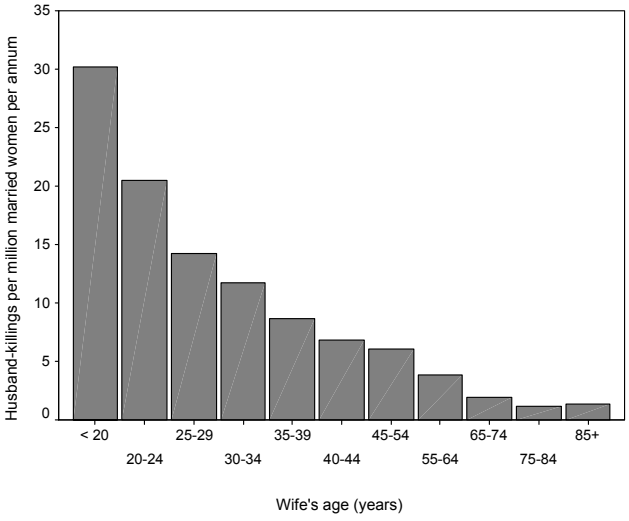
Procedures

Of the over 400,000 cases of homicide included in the database, 8,077 were cases in which a woman killed the man to whom she was legally married. All analyses were restricted to these cases. The average age of victims was 41.4 years (SD = 12.8 years), ranging from 17 to at least 98 years (ages 98 and older were coded in the database as 98 years; one such case each was included among the victims and perpetrators). The average age of perpetrators was 37.5 years (SD = 12.0 years), ranging from 12 to at least 98 years.

RESULTS

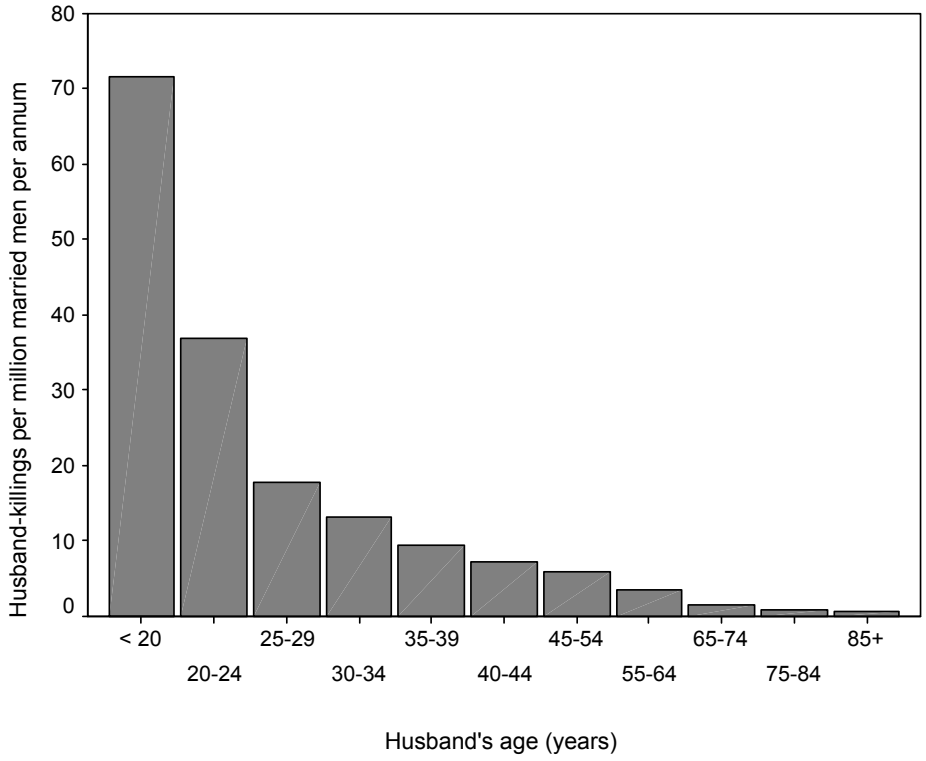
Figure 1 shows husband-killings per million married men per annum as a function of wife's age. The husband-killing rate is highest for teenage women who have the greatest reproductive value, or expected future reproduction (Buss, 1994). The clear trend is for the husband-killing rate to decrease with the reproductive value of the woman. Older, post-reproductive-age women kill their husbands at much lower rates than do younger, reproductive-age women.

FIGURE 1. Husband-Killings per Million Married Women per Annum as a Function of Wife's Age



I next investigated whether younger men were overrepresented among the victims of husband-killings. Figure 2 shows husband-killings per million married men per annum as a function of husband's age. Relatively younger men are killed by their wives at greater rates than are relatively older men. The highest husband-killing rate is for men in their teens. Paralleling the husband-killing perpetration rates for women, the clear trend in husband-killing victimization rates for men is a decrease with age.

FIGURE 2. Husband-Killings per Million Married Men per Annum as a Function of Husband's Age



I next conducted an analysis to identify whether women married to relatively older men are at particularly high risk for perpetrating husband-killings. To facilitate future work on the relationship between husband-killing rate and spousal age discrepancy, I constructed Table 1. As far as I know, no previous work has presented detailed information about husband-killing rate as a function of the age discrepancy between spouses. For the present project, my interest was in comparing the husband-killing rate of women married to relatively older men with the husband-killing rates of women married to same-age men and relatively younger men. Women at greatest risk of killing their husband are under the age of 25 and married to men between 35 and 44 years. Women who are toward the end of their reproductive years, between the ages of 35 and 44, and married to men in the 35-to-44 age bracket, kill their husbands at one-fifteenth the rate of women less than 25 years who are married to men aged 35 to 44. Other age pairings show similar trends.

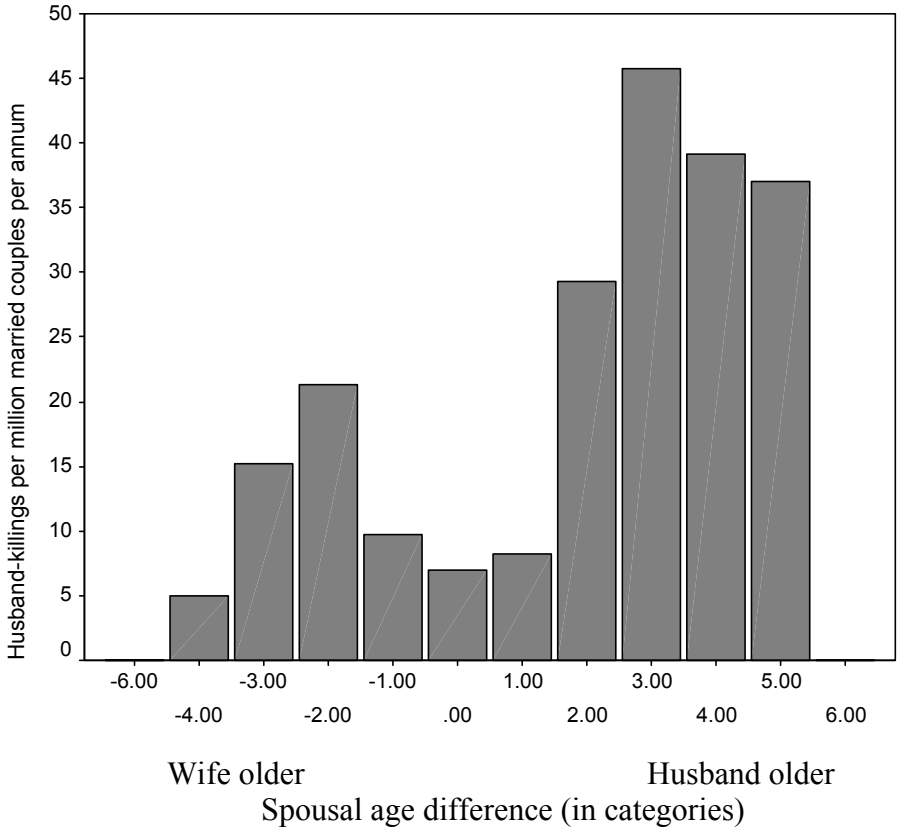
TABLE 1. Husband-Killings per Million Married Couples per Annum, by Husband's Age And Wife's Age

	Wife's age							
Husband's age	< 25	25-34	35-44	45-54	55-64	65-74	75-84	85+
< 25	27.04	26.70	45.46	10.00	N/A	N/A	0.00	N/A
25-34	24.15	9.66	13.02	31.11	19.09	10.00	N/A	N/A
35-44	95.56	13.38	6.48	10.83	34.74	22.00	0.00	N/A
45-54	74.09	37.87	8.67	5.08	9.09	5.53	10.00	N/A
55-64	71.82	48.70	20.00	6.49	3.46	6.15	6.88	N/A
65-74	52.00	61.82	39.07	9.26	2.67	1.68	1.35	4.55
75-84	N/A	22.00	13.13	21.25	4.86	1.07	1.09	0.93
85+	N/A	0.00	N/A	10.00	N/A	7.71	1.03	1.19

Note. N/A = Population estimate of zero; therefore, rate could not be computed.

Figure 3 is constructed from the data in Table 1 and shows husband-killings per million married couples per annum as a function of spousal age difference, in categories. In this figure, "1" indicates a one category difference between the age of a husband and the age of his wife, "2" indicates a two-category difference, and so on. Positive values refer to categorical differences in which a husband is older than his wife, whereas negative values refer to categorical differences in which a wife is older than her husband; "0" refers to cases in which the husband and wife are in the same age category. Figure 3 shows that husband-killing rates for women married to relatively older men are higher than husband-killing rates for women married to same-age men and relatively younger men. For example, the husband-killing rate for women married to men who are older by three age categories is over seven times higher than the husband-killing rate for women married to same-age men, and over three times higher than the husband-killing rate for women married to men who are younger by three age categories.

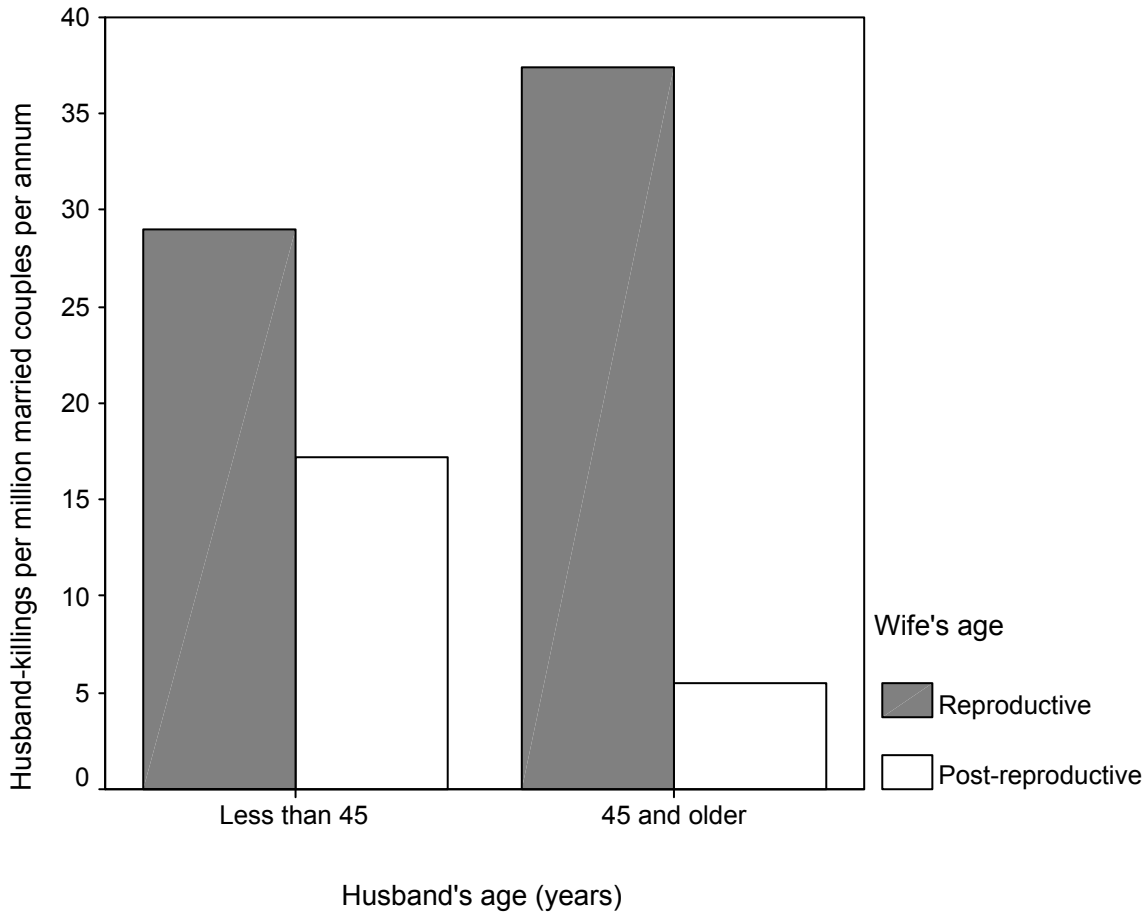
FIGURE 3. Husband-Killings per Million Married Couples per Annum as a Function of Spousal Age Difference, in Categories



NOTE: "1" indicates a one category difference between the age of husband and age of wife, "2" indicates a two category difference, and so on. Positive values refer to categorical differences in which husband is older than wife, whereas negative values refer to categorical differences in which wife is older than husband. "0" refers to cases in which husband and wife are in the same age category. Categories are as follows, in years: < 25, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85 and older.

A critical test of the hypothesis that reproductive-age women are at special risk for husband-killing is to compare the husband-killing rates for reproductive-age women and post-reproductive-age women across two groups: women married to younger men and women married to older men. If husband-killings are perpetrated primarily by women in self-defense or out of desperation following years of battering, and if reproductive-age women are at special risk for battering by sexually-proprietary husbands, then reproductive-age women should kill their husbands at higher rates than post-reproductive-age women, and this should be true for women married to younger men and women married to older men. This is precisely what Figure 4 reveals.

FIGURE 4. Husband-Killings per Million Couples per Annum as a Function of Husband's Age and Wife's Reproductive Status



NOTE: Reproductive-age women are less than 45 years, whereas post-reproductive-age women are 45 years and older.

Figure 4 is constructed from the data in Table 1 and shows husband-killings per million couples per annum as a function of husband's age and wife's reproductive status. The husband-

killing rate for reproductive-age women (younger than 45 years) is higher than the husband-killing rate for post-reproductive-age women (45 years and older) for marriages to younger men and for marriages to older men. Among women married to younger men, reproductive-age women killed their husbands at 1.7 times the rate of post-reproductive-age women. Among women married to older men, reproductive-age women killed their husbands at 7.6 times the rate of post-reproductive-age women. These rate differentials across husband age categories provide strong evidence that reproductive-age women kill their husbands at a higher rate than do post-reproductive-age women, and that this rate differential is not attributable to husband's age.

DISCUSSION

Using a sample of nearly a half million homicides, I selected for analysis the 8,077 cases in which a woman killed the man to whom she was legally married. The data included information that allowed me to test the hypothesis that reproductive-age women kill their husbands at higher rates than do post-reproductive-age women, and that these rate differentials are not attributable to husband's age. The results support this hypothesis, and document that (a) the highest rates of husband-killing are for the youngest, most reproductively valuable women, and (b) the youngest husbands are at greatest risk of being killed by their wives. The results also show that (c) women married to relatively older men kill their husbands at a higher rate than do women married to same-age men and women married to relatively younger men. The latter finding casts doubt on the possibility that the greater husband-killing rate among reproductive-age women is an incidental byproduct of marriage to younger, more violent men.

Stronger support for the hypothesis that reproductive-age women are at special risk for perpetrating husband-killing is provided by the finding that reproductive-age women kill their husbands at higher rates than do post-reproductive-age women across two groups of women: those married to younger men and those married to older men. These results suggest that there is something special about reproductive-age women that makes them more likely to kill their husbands, relative to post-reproductive-age women. That "something special" may be that reproductive-age women incur greater risk of husband-perpetrated battery and homicide than do post-reproductive-age women (Daly & Wilson, 1988; Shackelford et al., 1999; Wilson et al., 1995). One important direction for future work is to identify the underlying causes of reproductive-age women's greater risk of battery and, consequently, the higher rates at which reproductive-age women kill their husbands. One possibility, for example, is that reproductive-age women, relative to post-reproductive-age women, are more likely to be sexually unfaithful to their husbands--or to arouse suspicions of infidelity in their husbands. Reproductive-age women may trigger sexual jealousy more often or more intensely than do post-reproductive-age women. A husband's sexual jealousy, in turn, can fuel wife battery (Daly & Wilson, 1988, 1996). This chain of causality might, in part, explain why reproductive-age women are overrepresented among the perpetrators of husband-killing.

Previous work documents that reproductive-age women are more violent than post-reproductive-age women in several contexts, including mate attraction and mate retention (see, for example, Campbell, 1995). Can the current results be accounted for by the greater violence displayed by reproductive-age women, relative to post-reproductive-age women, in these several contexts? Perhaps, but it is not at all clear how this aids in explaining *why* and *under what*

conditions a woman might kill her husband. Or *why* and *under what conditions* a woman might behave violently or even homicidally toward the woman with whom her boyfriend is having an affair. If we hope to learn more about issues such as husband-killing, we must avoid for now blanket statements such as "reproductive-age women are generally more violent than post-reproductive-age women," because these blanket statements discourage the search for deeper and more comprehensive explanations.

Two limitations of the current project are attributable to limitations of the FBI SHR database. First, this database does not provide information on whether the homicidal woman was battered by her husband. Instead, I have assumed that husband-killings in this database were preceded by wife-battery. Previous work (reviewed in the Introduction) suggests that this is a reasonable assumption. Second, and more generally, the FBI SHR database is limited in the breadth and depth of information provided on each homicide. Although the present research identifies one important predictor of husband-killing--wife's age or reproductive status--we have much to learn about why some women kill their husbands that cannot be gleaned from the FBI SHR database. For example, do women who kill their husbands share a particular constellation of personality traits? Among women who are battered, are those that are battered more frequently or more severely more likely to kill their husbands, as suggested by Browne's (1987) pioneering work?

In summary, the current research documents that younger, reproductive-age women are overrepresented among the perpetrators of husband-killing and that this overrepresentation is not solely attributable to husband's age. We know very little else about husband-killings--the relationship characteristics of these ill-fated marriages, or the personality traits of perpetrators and victims, for example. A better understanding of the causes of husband-killings will place us in a better position to identify women at greatest risk for killing their husbands and men at greatest risk for getting killed.

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DISCUSSION

Vicki Titterington: Jenny, did you have any same-sex relationships?

Jenny Mouzos: Yes, four cases.

Roland Chilton: What proportion of the offenders kills themselves?

Jenny Mouzos: About seven cases.

Dick Block: Seven cases?

Jenny Mouzos: There were seven cases where the offender killed herself. Two of those cases involve the offender killing her partner and then herself.

Steve Roth: When female offenders kill other females, are they more likely to work with others?

Jenny Mouzos: I haven't looked at those yet.

Jackie Campbell: Have you compared the rate of infanticide with that in other cultures?

Jenny Mouzos: Overall, infanticides in general are 2 per 100,000 persons.

Jackie Campbell: I think it's lower than that in the States. Scenario 1 vs. scenario 2, do you know the proportion?

Jenny Mouzos: The greatest category was deadly disputes. It was something like 56 out of 183 in scenario 1, and something like 30 for the second.

Becky Block: How did you code the scenarios?

Jenny Mouzos: By going through the case studies, the supplementary information from the police, and going through cases looking for an indication ending the relationship

Becky Block: Drugs and alcohol together?

Jenny Mouzos: There were not many cases that involved illicit drugs, but it was not always clear.

Linda Langford: What about those that have domestic violence and alcohol and drugs involved?

Jenny Mouzos: There was usually previous violence. The actual homicide resulted from battering of victim. If previous battering incident occurred, then it would be the first scenario. It is possible that the first scenario may have been an underestimate.

Marc Riedel: Does Australian law allow justifiable homicide, claiming the battered-woman syndrome?

Jenny Mouzos: Yes, we do. There is self-defense, diminished response, and could be not guilty on grounds of insanity. Women who kill children who act alone and those that work with another offender are very different scenarios.

Kathleen Heide: What weapons were cited?

Jenny Mouzos: It varied. Overall, knives were most common, then hands and feet, and guns were third. Females kill most with knives in intimate homicide.

Roland Chilton: What are the chances of integrating the Aboriginal population with the general population?

Jenny Mouzos: The majority of the Indigenous homicides occurred in rural areas.

Steve Roth: Todd, does any of this surprise you given the general trends of age, sex, and violent crime?

Todd Shackelford: No one has attempted to pull apart wife and husband age, intersecting reproductive-age women that are more likely to kill husbands.

Steve Roth: I didn't know what you were talking about. You said 3 years mean difference, do you know the distribution of the difference in age?

Todd Shackelford: Census data show the mean age difference is 2.5 years difference. This means that is it not an extremely strange population.

Steve Roth: On the basis on randomness, the distribution of all other things being equal. The male is older and in most cases 3 years older. Given the population it is not a random finding.

Todd Shackelford: Actually, I looked at rates. An average age difference of 3 years is not a huge difference. That is why the rate is so high for reproductive-age women. It far exceeds expectations for the rate you would expect. Overrepresentation, rates go up.

Jenny Mouzos: Are data available to find out if this applies to common law marriage?

Todd Shackelford: Yes, rates are virtually identical for cohabitating and married couples, true for both men killing women and women killing men.

CHAPTER FIVE

DIRECTIONS AND DEVELOPMENTS IN THEORY TESTING ON HOMICIDE

RELIGION AND LETHAL VIOLENCE: UNRAVELING DURKHEIM'S MYSTERY

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ABSTRACT

In contrast to Durkheim's well-known argument about the inhibiting effect of religion on suicide, very little attention has been paid to his argument that religion has the opposite effect on homicide. This paper reports the results of such an analysis, focusing on the effect of measures of religiosity from the World Values Surveys in 43 nations on rates of self-directed and other-directed lethal violence (suicide and homicide) and the suicide-homicide ratio. Consistent with Durkheim's arguments, measures of a passion for religion among people in a nation tend to be negatively related to suicide rates, but positively related to homicide rates. In contrast, measures of religiosity tapping membership alone tend to be negatively related to both suicide and homicide. However, consistent with Unnithan, Huff-Corzine, Corzine, and Whitt (1994), religiosity encourages homicide among nations where people tend to view the world in "good-versus-evil" terms while discouraging homicide in nations where people are more flexible and tolerant. Overall, a passion for religion appears to slow the flow of lethal violence but direct it outward while organizational affiliation slows the flow and directs it inward.

INTRODUCTION

For much of the history of criminological theory and research, religious variables were either ignored or dismissed as irrelevant to the explanation of criminal and delinquent behavior (e.g. see Sutherland and Cressey 1978). The peripheral role of such variables seemed justified by early research where comparisons of delinquent and non-delinquent youth sometimes found no differences, greater religiosity among non-delinquents, or greater religiosity among delinquent youth (Jensen & Rojek, 1998, ch. 8). Moreover, initial exploration of correlates of criminal and delinquent behavior using survey methods suggested that their omission was of little consequence because measures of religious involvement and religious beliefs did not correlate with self-reports of delinquency when other variables were controlled (Hirschi & Stark, 1969).

The initial findings using survey data prompted a surge of new studies, and subsequent research found that the importance of religion to the explanation of self-reports of delinquency depended on the type of measure of religiosity, the type of offense, and the types of denominations or social settings represented in the samples studied. Measures of personal religiosity were found to have an inhibiting effect on drug use and, occasionally, other forms of delinquency. Those relationships were found primarily in groups and settings where religion was a salient dimension of communal social life or where there were strong ascetic religious norms. Although there are continuing debates about the sequence of religion in a chain of relationships (Burkett & Warren, 1987) and spurious connections attributable to family relationships (Elifson, Peterson, & Hadaway, 1983), the most common contemporary conclusion is that measures of

religiosity appear "to have a small effect on delinquency, especially victimless crime" (Agnew 2001, p. 188).

Although peripheral to criminology for much of its history, religious variables were central to the emergence of a distinctively sociological and quantitative approach to the study of suicide as a form of deviance, or self-victimization. In his classic work, *Suicide* (1897/1951), Emile Durkheim used data on variations in suicide rates among groups and societies and over time to develop a theory in which such self-victimizations were a product of three different causal processes--each process epitomized in different, distinct patterns of variation. Religion was a central focus in the explanation of the most common form of suicide.

Durkheim argued that suicide was most often a product of the "excessive individualism" or "egoism" that resulted when people were not closely integrated into social groups. Religious groups (e.g., Catholic, Protestant, Jew) varied in the degree to which they structured people's lives and variations in suicide rates among such groups were a product of the magnitude of religious integration. Other patterns of variation were explained as products of the disparity between aspirations and reality generated by sudden changes in the economy or sudden life events. Such suicides were designated as "anomic" suicides. Yet another type, "altruistic" suicide, encompassed suicides that were encouraged by group or societal expectations in certain situations. The basic types were differentiated on the basis of the causal process generating each, and Durkheim proposed that most of the known patterns of variation could be explained by one or another of these distinct social forces. He deemed egoistic suicides to be most common and such suicides were products of weak religious, domestic, and political integration into social groups.

Durkheim introduced these causal processes to explain distinct patterns of variation in *suicide*, but he also attempted an explanation of patterns of variation in another form of lethal violence, homicide. He had to address variation in homicide for the simple reason that it appeared to be inversely related to suicide. Summarizing patterns reported in earlier research, he noted that "Whether as regards their geographical distribution or their evolution in time, they are always found changing inversely with one another" (1897/1951, p. 340). In addition, certain key variables used to explain low rates of suicide appeared to have the opposite effect on homicide. For example, he proposed that suicide was inversely related to religious integration, but that homicide rates were positively related. This disparity was explained by noting the contrast between the individual motivation for the most common form of suicide and the motivation for homicide. He argued that egoistic suicide is most probable when "The individual no longer cares to live because he no longer cares enough for the only medium which attaches him to reality, that is to say, for society" (1897/1951, p. 356)." In contrast, he argues that "Homicide depends on the opposite conditions. It is a violent act inseparable from passion" (p. 356)

Durkheim qualifies the general inverse relation, noting that sometimes the two vary together, and that the anomic processes generating suicide can also generate homicide: "Anomie, in fact, begets a state of exasperation and irritated weariness which may turn against the person himself or another according to circumstances . . ."(1897/1951, p. 357). He speculates that "The causes determining the direction of such overexcited forces probably depend on the agent's moral constitution. . . . A man of low morality will kill another rather than himself." He then

shifts to a macro-level, arguing that, in general, suicide and homicide "are as mutually exclusive as night and day" since the most common form of suicide (egoistic) occurs under conditions contrary to homicide. On the other hand, the less common form of suicide, anomic suicide, can develop "in the midst of the same moral environment" as homicide. Durkheim introduces individual motivational states (i.e., "a state of exasperation and irritated weariness") when discussing anomie and argues that this state interacts with other characteristics of individuals to help explain the direction of lethal violence.

Durkheim's only direct effort to explain why religious integration might encourage homicide, while discouraging suicide, is his reference to "passion." Allegedly, integration into religious groups inhibits suicide by generating "passion" for group life, but facilitates homicide through the same process. His elaboration in the discussion of similarities to anomic suicide is equally vague in that the direction of violence is influenced by a person's "moral constitution" with men of "low morality" directing anger, exasperation, and irritation toward others.

Durkheim suggested a "stream analogy," speculating that, "Either homicide and suicide form two opposite currents, so opposed that one can gain only through the other's loss, or they are two different channels of a single stream, fed by a single source, which consequently cannot move in one direction without receding to an equal extent in the other" (1897/1951, p. 340). This observation has shaped the work of a number of contemporary researchers (See Unnithan et al., 1994) who have focused on the mediating mechanisms that direct violence against the self or others. The outward expression of violence has been attributed to a variety of factors, including the effect of "external constraints" on the channeling of aggression (Henry & Short, 1954), the outward "socialization of aggression" based on punitive child-rearing practices (Gold, 1958), and external versus internal "locus of control" (Whitt, 1968).

Although there is a growing body of research on the direction of violence, there has been relatively little attention to Durkheim's claim that integration into religious groups is a positive correlate of homicide. Stack (1983) analyzed data on publication of religious books and suicide rates for 25 nations and found a significant negative relationship for suicide, but did not analyze homicide rates. On the other hand, Lester (1987) analyzed the relationship between publication of religious books and both homicide and suicide for 18 nations and found neither of the relationships proposed by Durkheim.

In attempts to make sense of high rates of homicide and low rates of suicide in the American South, Luper, Hopkinson, and Kelly (1985) suggest that southern Protestant fundamentalism ascribes intentionality to people's actions, prompting people to react to a wide variety of situations as intentional attacks requiring a counter attack. Grasmick, Davenport, Chamlin, and Bursik (1992) have developed similar arguments to explain southern support for punitive sanctions, and Unnithan et al., (1994, p. 149) have extended this line of argument by proposing that "adherence to a fundamentalist doctrine would increase the chances of attributing the causes of one's failures to the malevolent acts of others, thus resulting in aggression being directed outward rather than inward." Whether such arguments apply to cross-national variations in either suicide or homicide is not known.

Durkheim focused on denominational categories when explaining egoistic suicide and interpreted variations in terms of "individualism" or "egoism" versus integration into religious groups. However, contemporary analyses have shown that such variations disappear when other variables such as modernization and divorce rates are controlled (Pope, 1976; Pope & Danigelis, 1981). Stack (1983, p. 364) has proposed moving beyond the narrow focus on denominational variation towards more direct measures of "religious commitment." He proposes that religious commitments and beliefs may affect suicide even in religiously pluralistic societies. Yet, his analysis was limited to an indirect measure in the form of religious book production.

A major impediment to further research attempting to discern the impact of religion on homicide and suicide in cross-national analysis has been the limited sources of information on characteristics of societies. Research has been limited to demographic and economic information compiled for various international organizations (e.g., inequality, GNP, industrialization, and urbanization) with data on religion and suicide limited to few variables (e.g., denominational composition and religious books published). Recognizing disparate findings and very limited measures of religious variables, Unnithan et al., (1994, p. 58) propose, "It may be prudent to postpone drawing strong implications for Durkheim's views on the effect of religion on homicide and suicide until more precise measures of religiosity are developed for cross-national research."

THE CURRENT INVESTIGATION

Fortunately, "more precise measures of religiosity" have been developed for cross-national research, and can be integrated with other sources of data to begin a more sophisticated analysis of the relationships between religious variables and both suicide and homicide. The World Values Surveys (WVS), conducted in 43 nations in 1990-93, encompassed approximately 70% of the world population. Interviews were conducted with samples of 300 to 4,000 citizens, 18 years of age and older, randomly selected from randomly selected locations. The survey instruments were specifically designed to allow cross-national comparisons of values and norms with questions tapping a wide range of dimensions of religiosity. In most nations, respondents were asked questions about the personal importance of God and religion, beliefs in God, the Devil, Hell and life after death, and specific conceptions of God and morality. Fifteen questions tapping dimensions of religiosity or religious commitment are available for 28 societies, and data on some items are available for up to 39 nations. All 15 items are listed in the Appendix.

The 15 items in the WVS are highly correlated with one another and Crombach's alpha for the set of 15 is .99. This statistic would justify the creation of a single index, but there are several problems with moving towards a general index of religiosity or a factor analysis to simplify the analysis. For one, there are only 28 nations with complete data on all 15 measures. Second, the fact that these measures are inter-correlated does not mean that each would enter into comparable relationships with suicide or homicide rates. Third, some of the theoretical statements about the impact of religion on the direction of violence imply either variation in impact among different measures, or interaction effects involving distinct conceptions of religiosity. Rather than initiate an analysis using an index or factor scores, the implications of prior theoretical arguments about religion, homicide, suicide, and the direction of violence should be considered.

Unnithan et al., (1994, p. 149) speculate that a "fundamentalist doctrine" could result in "aggression being directed outward rather than inward" implies possible interactions among types of measures as well. An assessment of this argument requires specification of measures of religiosity that tap "fundamentalist" or "orthodox" (Hunter, 1991) views in a manner that might structure the impact of other measures of religiosity on homicide. Religiosity may increase homicide when coupled with certain fundamentalistic religious or moral world views. Thus, specific patterns of interaction involving items that tap different dimensions of religiosity will have to be considered to begin untangling such intricate issues. Indeed, their speculation about fundamentalism might be tested by considering the impact of religion in national settings dominated by a conception of the moral universe in terms of a rigid dichotomy. Durkheim's religious "passions" may be strongest when the religious landscape allows no moderation, compromise, or tolerance. In settings with more "progressive" standards, religiosity may have no effect or a negative effect on homicide.

The aggregate WVS data for nations can be combined with other sources of data to begin an assessment of the impact of religiosity on homicide, suicide, and the direction of violence. Data on average homicide and suicide rates among nations are derived from reports posted on the Internet by the World Health Organization (WHO) in their compilation of causes of death (World Health Statistics Annual 1997-1999, Online Edition, 2000). The homicide and suicide rates are 3-year averages when possible, based on the three most recent reports between 1992-1998. To assure a maximum number of nations with data on homicide and suicide, earlier WHO reports were used to fill in missing information when possible. When no data were available the mean based on the other WVS nations was substituted. Data on other characteristics to be considered in a multivariate analysis (www.ilo.org) were provided by the International Labour Organization and MicroCase, Incorporated.

FINDINGS

General Patterns

The correlations between each of the religion items and both suicide and homicide rates are summarized in Table 1. The relationships are arranged to highlight certain patterns among sets of items. Measures of religiosity that enter into significant negative relationships with suicide and significant positive relationships with homicide are listed first. That pattern would provide the strongest support for Durkheim's argument. Given the small number of cases, relationships where the signs are consistent with the argument provide partial support.

Several observations can be made based on these correlations. For one, 13 of 15 measures of religiosity are significant negative correlates of suicide among WVS nations. The exceptions are belief in reincarnation and self-definition as a "religious" person (in contrast to "not a religious person" and "a convinced atheist"). The self-definition item involves no specific religious belief system, nor any level of passion in commitment to that self-conception. While belief in "life after death" is strongly related to suicide rates, belief in "reincarnation" has no

TABLE 1. Suicide and Homicide Rates by Measure of Religiosity

Measure	Suicide Rate	Homicide Rate
I. Significant Suicide Negative, Significant Homicide Positive Pattern		
RELIMP	-.441**	+.427**
GOODVSEVIL	-.340*	+.449**
II. Significant Suicide Negative, Insignificant Homicide Positive		
RELIGFTH	-.439**	+.220
COMFRELIG	-.345*	+.042
GODIMP	-.334*	+.231
HELL	-.510**	+.241
DEVIL	-.554**	+.223
LIFEAFTER	-.632**	+.137
III. Significant Suicide Negative, Significant Homicide Negative		
BELONGREL	-.374*	-.400**
IV. Significant Suicide Negative, Insignificant Homicide Negative		
CH. ATTEND	-.304*	-.082
BELGOD	-.608**	-.180
PRAY	-.397*	-.090
PERSONALGO	-.644**	-.189
V. Both Insignificant		
REINCARNAT	-.134	+.207
REL. PERSON	-.180	+.151

* Significant at the .05 level.
** Significant at the .01 level

significant inhibiting effect on suicide. In general, items that tap basic beliefs (belief in God, a personal God, and life after death) tend to enter into the strongest relationships with suicide rates.

Second, religiosity is a significant positive correlate of homicide in only two instances. The greater the aggregate percent of a nation's respondents who (a) define their religion as "very important" in their lives, or (b) are committed to an absolutist "good vs. evil" conception of morality, the greater the homicide rate. Of the remaining 13 items, the signs are positive in eight instances, but the relationships are not significant. One item actually enters into a significant negative relationship with both homicide and suicide. The greater the percentage of respondents in a nation who indicate belonging to a denomination, the lower the suicide and homicide rates.

The case for a negative relationship between the religiosity of a nation's people and the suicide rate is quite strong. Whether measures of conventional religiosity, the salience or penetration of religion into people's lives, or rather fundamentalist beliefs and moral conceptions, religion appears to inhibit suicide in bi-variate analyses. On the other hand, the expected positive relationship between religiosity and homicide is significant for only two items. However, those two items may tap the "passion" emphasized by Durkheim, or the fundamentalism emphasized by Unnithan et al., (1994). Finally, the measure of religiosity which taps actual membership or belonging to a denomination appears to be associated with lower suicide *and* homicide rates. If "belonging" is a measure of religious integration, then the results are contrary to Durkheim's argument that religious integration is a positive correlate of homicide rates for that item. However, it is important to note that Durkheim had no empirical measures of religiosity and inferred religious integration from denominational differences.

The negative relation for belonging and the positive relationship for the personal importance of religion highlight the importance of distinguishing among dimensions of religiosity. In the set of nations included in the WVS, religious integration as measured by self-acknowledged membership is a negative correlate of both homicide and suicide, while "religious commitment" is a positive correlate of homicide and a negative correlate of suicide. This pattern is even more perplexing when the fact that the two types of religiosity are positively correlated is considered (+.56).

The reversal persists in a multi-variate analysis as well. When homicide rates are regressed on membership and personal importance, membership is a significant negative correlate while importance is a significant positive correlate. That pattern is not a product of the denominational composition of a nation's population since percent Muslim, Catholic, Protestant, or Jewish had no impact on homicide rates, although percent Muslim and percent Catholic were significant negative correlates of suicide.

The results for belonging versus personal importance of religion suggest that, despite their correlation with one another, they are tapping distinct dimensions of social life that have contrary consequences for homicide. Belonging can be considered as an indicator of organizational membership while the importance item is more appropriately viewed as a measure of intensity, commitment, or passion. One way to assess this argument is through other indicators that can be argued to be measures of the organization of religion as opposed to the personal salience of religion. Although Stack used religious books published as measure of "religious

commitment," it can be argued that his measure of religiosity actually captures the degree to which religion is organized or institutionalized to produce published works. Were this argument correct, we should find stronger correlations between Stack's measure of book production and the belonging item than between his measure and aggregate personal importance. Moreover, we should find religious book production to be negatively related to both homicide and suicide rates. These expectations are consistent with actual findings. Book production is significantly and positively correlated with belonging (+.616 for 19 overlapping nations), but is not significantly related to personal importance (+.141 for 18 nations). The book production measure is a significant negative correlate of suicide rates (-.456 for 24 nations) and is a negative (but not significant) correlate of homicide rates (-,204 for 24 nations). In sum, measures of religiosity reflecting the organization of religion are distinct from measures of the personal salience of religion and enter into contrary relationships with homicide.

The Flow and Direction of Lethal Violence

The data in Table 1 suggest that religious variables may affect both the rate and direction of lethal violence, but a specific analysis of the relationships between the measures of religiosity and the flow and direction of violence is required for more definitive conclusions. Table 2 summarizes the bi-variate relationships between each of the 15 items, total lethal violence (the sum of the homicide and suicide rates) and the suicide-homicide index (SHR: the suicide rate divided by the lethal violence rate). In general, the greater the religiosity of a nation, the lower the total rate of lethal violence. Fourteen of 15 relationships are negative, and 8 of those relationships are statistically significant. Those relationships primarily reflect the inhibiting impact of religiosity on suicide rates. The two items that entered into the predicted "+/-" pattern for homicide and suicide do not affect the rate of lethal violence, but they do affect its direction. The greater the personal religiosity of members of a system, the more likely violence is to be directed "outward." Three other measures of religiosity enter into significant negative relationships with SHR as well. In contrast, the measure of membership not only directs violence inward (a positive relationship with SHR), but is negatively related to the rate of lethal violence. Adopting Durkheim's stream analogy, the data suggest that religious commitment tends to slow the stream and to direct violence outward with the exception of the measure of organizational affiliation, which slows the flow but directs it inward.

Interaction Effects

The theoretical speculation that certain belief systems direct violence in different directions will be tested by examining the relationship between the percent of respondents indicating religion is very important in their lives to homicide and suicide rates among nations that fall above the median in a "good-versus-bad" conception of morality, and nations falling below the median. If these measures do tap the variations suggested, then there should be a positive relationship with homicide in the fundamentalist settings, and a weak (or, even inverse) relation in the more "progressive" societal settings.

TABLE 2. Total Lethal Violence and SHR by Measure of Religiosity

Measure	Total	SHR
RELIMP	- .247	-. 418**
GOODVSEVIL	- .113	- .549**
RELIGFTH	- .324*	- .168
COMFRELIG	- .204	- .138
GODIMP	- .204	- .128
HELL	- .329*	- .326*
DEVIL	- .377*	- .356*
LIFEAFTER	- .541**	- .084
BELONGREL	- .430**	+ .310*
CH. ATTEND	- .273	- .200
BELGOD	- .538**	- .081
PRAY	- .345**	+ .024
PERSONALGO	- .557**	- .049
REINCARNAT	+ .103	- .384*
REL. PERSON	- .132	- .061

* Significant at the .05 level
** Significant at the .01 level

The relationships between homicide rates and the importance of religion within these two categories are plotted in Figure 1. The data are consistent with the hypothesis. The aggregate importance of a religion is a significant positive correlate of homicide rates in nations characterized by above median percentages endorsing a rigid, fundamentalist morality. For 18 nations in that category, the correlation is +.565 (p = .009). In contrast, the correlation for the 18 nations falling below the median is -.308 (p = .114), while the relationship in open societies is not significant. Moreover, a test of significance for the difference in slopes yields an F-statistic

of 6.527 (p = .016) which is significant at the .05 level. Durkheim's argument for a positive relationship between religious passion and homicide is supported only in societies where people tend to define good and evil in dichotomous terms.

FIGURE 1. Homicide Rate by Importance of Religion in Rigid and Open Systems

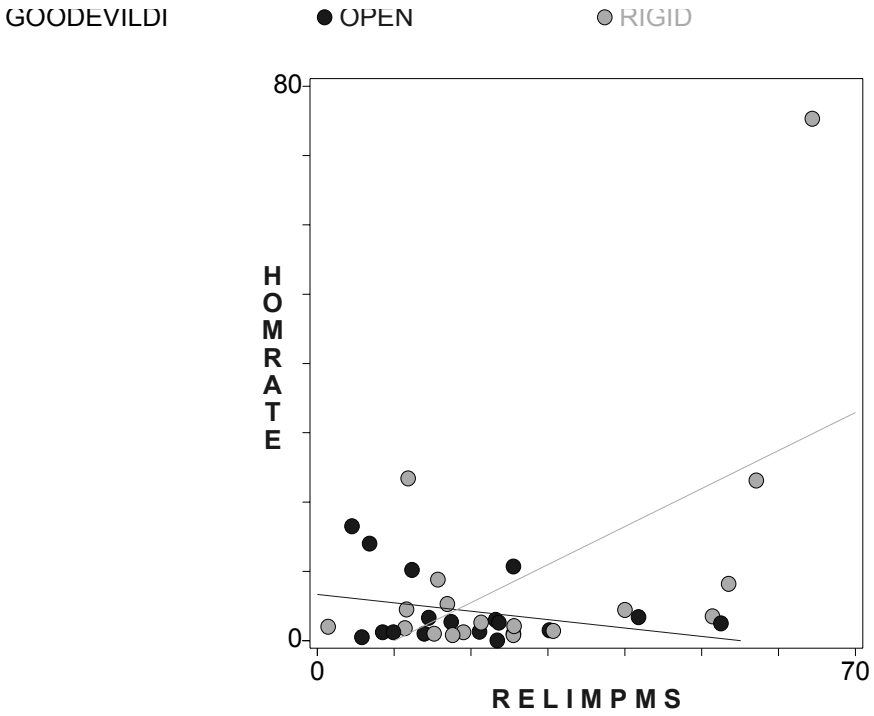
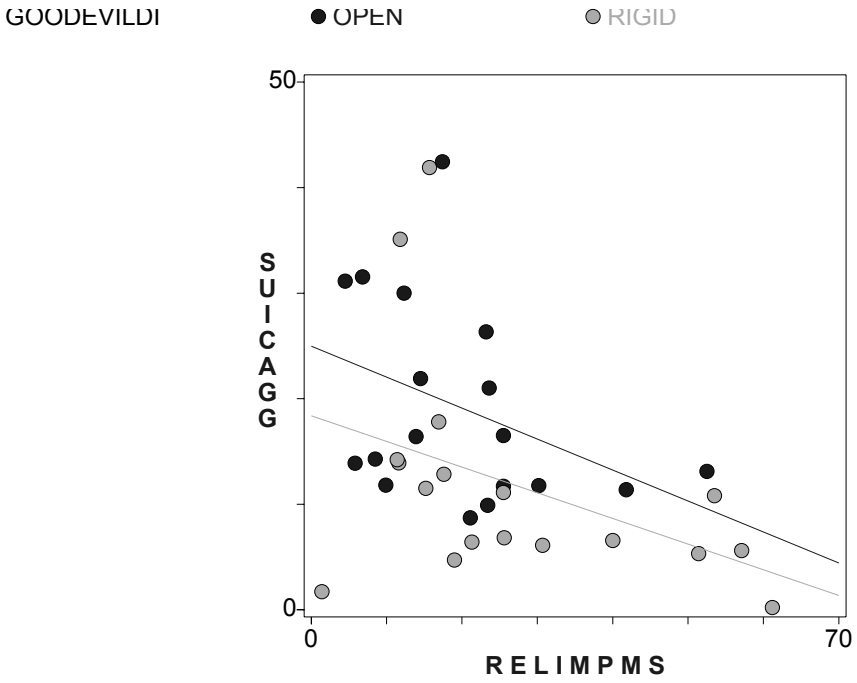


Figure 2 plots suicide rates and the importance of religion within the two categories. In contrast to homicide rates, the greater the importance of religion, the less the suicide rate in both categories, although the correlations are just over the line for significance at the .05 level. The correlation for open societies is -.389 (p = .061) compared to -.405 (p = .053) for more rigid settings. There is no significant difference in slopes (F = .049, p = .826). Hence, the expected negative religiosity-suicide relationship and positive religiosity-homicide relationship is found only in the fundamentalist nations. In more tolerant moral settings, both suicide and homicide are negatively related to the importance of religion.

As might be expected based on the data summarized in Figures 1 and 2, similar patterns of interaction are found in the analysis of total lethal violence. In the fundamentalist settings, personal religiosity increases the flow of violence (beta = +.417) while it decreases lethal violence in the more tolerant settings (beta = -.433), and the slopes were significantly different in the two subsamples. The direction of violence was strongly affected in the fundamentalist settings (beta = -.575), and was slightly affected in non-fundamentalist settings (beta = -.130). Hence, the aggregate religious characteristics of a nation appear to be relevant to understanding homicide rates, suicide rates, total lethal violence, and the direction of violence.

FIGURE 2. Suicide Rate by Importance of Religion in Rigid and Open Systems



Alternative Explanations

To this point, there have been no controls for other variables that might explain the relationship between religiosity, homicide, and suicide. The history of research on correlates of suicide mandates the incorporation of additional variables, and both theory and research in criminology suggest similar caution in the analysis of homicide rates. For example, Messner and Rosenfeld (1997) propose that a key characteristic of societies relevant to the explanation of variation in homicide rates is investments in political policies that constrain criminogenic market forces by "decommodifying" a nations citizen's. They found support for their "institutional anomie" theory in that measure of such investments was a persistent negative correlate of homicide among nations when an excess of females relative to males, income inequality, economic development, age composition, sex ratios, and other variables were controlled. Whether such policies also inhibit suicide has not been addressed, although Messner and Rosenfeld present institutional anomie theory as a theory of "lethal violence."

A variety of additional theories imply that homicide rates should vary directly with the cultural diversity and inversely with the stability of nations. For example, Gibbs (1981) and Black (1983) propose that homicides can be conceived of as attempts at direct control or self-help in resolving conflicts when other less direct social control mechanisms are not available. The prevalence of such direct attempts should be greatest (a) in nations that have recently experienced considerable social or political change, disrupting or inhibiting the efficacy of social control mechanisms; and (b) in nations where cultural diversity may inhibit sizeable segments of the population from seeking resolutions through agents of formal social control. Moreover,

cultural diversity can generate conflicts over territory among competing groups as well as the range and diversity of transactions that constitute threats to honor (Sutherland, Cressey, & Luckenbill, 1992).

Table 3 summarizes the results of a regression analysis for homicide rates, suicide rates, total lethal violence, and the direction of violence. The variables entered into the analysis include inequality, a measure of "multi-culturalism," social welfare expenditures relative to GNP, the sex ratio (females divided by males), a dummy variable for recently established governments, proportion of the population in the high-rate age group (18 to 30), economic development, the religion item that was related to homicide, and a score for the three religion items that were related to suicide. Two variables are significantly related to homicide rates at the .05 or .01 level --the religiosity interaction variable and the dummy variable for recently established governments. Cultural diversity is related at the .10 level. On the other hand, neither the control variables nor government investments in decommodification are significantly related to homicide in the 29 World Value Survey nations included in the analysis.

TABLE 3. Multiple Regression for Homicide, Suicide, Total Lethal Violence and the Direction of Violence (SHR)

	Homicide	Suicide	Total	SHR
INEQUALITY	0.012	0.070	0.193	0.033
MULTI-CULT	0.240*	0.260**	0.355***	-0.188*
SOCWELFARE	0.103	0.132	0.039	0.025
SEX RATIO	-0.020	0.310**	0.369**	-0.212*
RECENT	0.474***	0.296**	0.413***	-0.348***
AGE18-30	0.199	-0.346**	-0.144	-0.313**
ECON DEVEL	-0.156	-0.086	-0.083	0.478***
EVILRELINT	0.414***	0.090	0.213*	-0.241**
FUNDRELIG	0.059	-0.323**	-0.260*	-0.264**
N=	29	29	28	28
R^2=	.834	.829	.813	.866

* Significant at .10 level
** Significant at .05 level
*** Significant at .01 level

Five variables are significantly related to suicide rates in the analysis. Multi-cultural nations, nations with recently established governments, and nations with an excess of women relative to men tend to have high rates, while nations strong in religiosity with a sizeable popuation 18-30 years of age tend to have low rates. Only two variables overlap as significant correlates of both homicide and suicide rates. Nations with recently established governments tend to have high rates for both forms of lethal violence, as do multi-cultural nations. In contrast, the sex ratio was relevant to suicide rates, but not homicide rates, and the special religious item was positively related to homicide rates, but not suicide rates.[1]

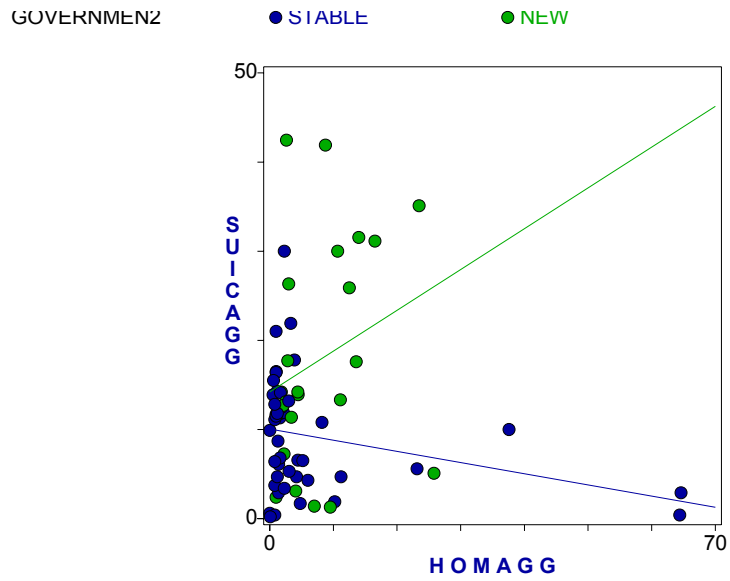
Five variables are related to the total flow of violence, and 7 are related to the direction of violence. Of the 9 variables in the analysis only inequality and the social welfare variable failed to enter into any significant relationships. In contrast, while economic development has no independent effect on homicide, suicide, or the total flow of violence, it does appear to have a prominent effect on the SHR, shifting violence inward (+.478 for SHR). Cultural diversity has a slight effect on homicide and suicide, but the effect on total violence is quite strong (+.355) and there is a slight tendency for it to shift violence outward (-.188). The recent government variable has the most dramatic effect across measures, entering into positive relationships with homicide, suicide, and total violence, with a tendency to shift violence outward. Moreover, although a high proportion of the population in the high-homicide age range has no effect on homicide when other variables are controlled, it does lower suicide rates sufficiently to generate an outward direction for violence. Finally, both religion variables affect total violence and the direction of violence, but the source of those shared effects are a product of quite different patterns of influence on homicide and suicide. The special measure of religiosity (EVILRELINT) shifts violence outward through a prominent positive effect on homicide while the more general religiosity score (FUNDREL) shifts violence outward through its inhibiting effect on suicide.

[1] The impact of an excess of women on the suicide rate may be a product of an excess of elderly and widowed women, since life expectancy is greater for women than men. Messner and Sampson (1991) argue that an excess of women can lower homicide by lowering the proportion of high risk males, but increase the homicide rate by increasing the number of "disrupted" single-parent households. Such countervailing effects could lead to no relationship for homicide rates. Since there were major political changes among the nations in the 1990s, with many creating new democratic governments, Durkheim's argument about anomie suggests that homicide and suicide will be positively correlated among nations sharing that experience, but negatively correlated among the "older," more established nations. In short, his interpretation suggests a reversal in the relationship between the two categories of the recent government variable.

The findings on the recent government variable can be interpreted as consistent with Durkheim's argument about similarities between homicide and "anomic" suicide. Durkheim (1897/1951, p. 252) proposed that suicide rates were high during periods of major political and social change, especially during periods of sudden change: "When society is disturbed by some painful crisis or by beneficent but abrupt transitions, it is momentarily incapable of exercising this (regulating) influence; thence come the sudden rises in the curve of suicides." He interpreted those patterns as reflecting surges in "anomic" suicide under conditions similar to those that generate high rates of homicide.

Durkheim's argument about "anomic" suicide and homicide suggests a testable hypothesis: Homicide and suicide rates among nations should be negatively related in the most politically established or stable nations, but positively related in nations that have recently experienced "beneficent but abrupt transitions." For all WVS nations, homicide and suicide rates are significantly and positively related (+.43, p = .006). When the larger sample of WHO nations with suicide and homicide data were considered, there is no relationship (r = -.018, p = .440). On the surface, such findings appear to challenge Durkheim's overall thesis but are quite consistent with recent research which has yielded variable results on this issue (Lester & Wang, 1998).

FIGURE 3. Homicide and Suicide Rates Within New and Old Democracies



The suicide-homicide relationships in the two sets of nations are summarized in Figure 3, and are quite consistent with Durkheim's argument. Using all WHO nations (as compared to WVS nations) there is a significant negative relationship between suicide and homicide for 46 established democracies (r = -.277, p = .033). In 23 nations with more recent governments the relationship is positive, although not statistically significant (+.250, p = .131). An analysis of covariance supports the hypothesis that the slopes are significantly different between the two sets

of nations. Moreover, the same pattern persists when the analysis is limited to the WVS nations. Homicide and suicide vary inversely in the 23 old democracies ($r = -.243$, $p = .138$), but are positively related ($r = .487$, $p = .077$) in the 11 nations with recently established governments. Homicide and suicide are positively related in nations experiencing recent, beneficent, but abrupt change, but are negatively related in older democracies.

SUMMARY AND CONCLUSIONS

Survey data collected in the World Value Surveys allow a more direct assessment of Durkheim's hypotheses that religious integration inhibits suicide, but facilitates homicide, than has been possible using other sources of data. Using 15 different survey items aggregated to measure dimensions of religiosity within nations, the analysis of suicide rates is quite consistent with Durkheim's proposition. However, while there was a tendency towards positive correlations between religiosity and homicide rates, only two relationships were positive and statistically significant. The greater the personal importance of religion among the people in a nation, and the greater their tendency to structure morality into a "good versus bad" dichotomy, the lower the suicide rate, but the higher the homicide rate.

One relationship was significant for both homicide and suicide rates, but was negative in both instances. The greater the percent of a nation's population that indicates "belonging" to a religion, the lower the homicide rate and the lower the suicide rate. If "belonging" is accepted as a measure of organizational affiliation, then it appears that such affiliations inhibit both forms of lethal violence. In contrast, measures of personal passion and fundamentalist religious beliefs appear to encourage homicide, while discouraging suicide. Such measures may be tapping Durkheim's "passion" for religion, or they may be tapping beliefs and feelings that direct anger and violence towards external targets.

Unnithan et al., (1994) hypothesize that certain religious beliefs structure anger outward, and an analysis of the effect of national variations in aggregate personal religiosity on homicide rates for nations below and above the median on the morality item was quite consistent with that hypothesis. Aggregate personal religiosity of a nation escalates the homicide rate when such fundamental beliefs are strong, but may lower the homicide rate when less infused with fundamentalism. No such interaction effect could be found for suicide rates.

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APPENDIX

World Value Survey Religiosity Items

1. (RELIMP) How important is religion in your life? (Percent responding "Very")
2. (GODIMP) How important is God in your life? (Percent responding "Very")
3. (BELGOD) Do you believe in God? (Percent responding "Yes")
4. (DEVIL) Do you believe in the Devil? (Percent responding "Yes")
5. (HELL) Do you believe in Hell? (Percent responding "Yes")
6. (LIFEAFTER) Do you believe in life after death? (Percent responding "Yes")
7. (REINCARNAT) Do you believe in reincarnation? (Percent responding "Yes")
8. (RELIGFTH) Is it especially important for children to learn religious faith at home? (Percent responding "Yes")
9. (PRAY) How often do you pray to God outside of religious services? (Percent responding "Often" or "Sometimes")
10. (COMFRELIG) Do you get comfort and strength from your religion? (Percent responding "Yes")
11. (REL. PERSON) Independently of whether you go to church or not, would you say you are a religious person, not a religious person, or a convinced atheist (Percent responding "Religious person")
12. (CH. ATTEND) Apart from weddings, funerals and christenings, how often do you attend religious services these days? (Percent responding "once or more per week," "once a week," "once per month")
13. (GOODVSEVIL) There are absolutely clear guidelines about what is good and evil. These always apply to everyone, regardless of circumstances. (Percent choosing this description over "it depends on circumstances" or "there can never be such guidelines").
14. (BELONGREL) Do you belong to a religious denomination? (Percent responding "Yes")
15. (PERSONALGO) Which of these statements comes closest to your beliefs? (Percent choosing God as a "Personal God" vs. "Spirit," "Confused" and "No God")

THE IMPORTANCE OF DISAGGREGATION IN SPECIFYING THE SOUTHERN SUBCULTURE OF VIOLENCE

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ABSTRACT

The historically higher rates of homicide found in the South compared to other regions in the United States has led some to conclude that higher southern homicide rates may be due to cultural differences in that region. However, most studies have utilized the total homicide rate in measuring regional differences in homicide instead of specifying the types of homicide most likely to reflect the cultural thesis. The present study examines regional patterns in homicide using disaggregated homicide counts based upon race, sex, and the context of the lethal encounter.

INTRODUCTION

The notion of a "subculture of violence" has a storied and somewhat controversial history in the study of crime. Owing much to the seminal work of Wolfgang and Ferracuti (1967), the subcultural thesis essentially maintains that subcultures among certain groups have normative systems which approve of the use of violence in certain conditions, such as defending one's honor or manhood (Corzine, Huff-Corzine, & Whitt, 1999). One particular application of the subculture of violence that has gained much notoriety has been in explaining the historically higher rates of homicide that have occurred in the southern United States (Hackney, 1969; Gastil, 1971). As expressed by Gastil (1971), this "regional culture of violence" concept suggests that South may have a tradition that condones the use of lethal violence in specific situations, and that

this tradition may be reinforced intergenerationally, thus explaining the persistently high rates of lethal violence over time.

The imagery suggested by the regional subculture of violence is of a White male who kills another male as a result of a dispute or argument, or as the result of a love triangle.[1] As Reed notes, "a cultural explanation of violence implies that southerners should be more violent than other Americans only in *certain circumstances*" (1981, p. 12). Yet, for the most part, much of the research on the subcultural thesis has explored violence in the South without regard to these *circumstances*. Many of these studies have conveniently used the total homicide rate for the particular geographic unit being examined, disregarding the race, sex and situational specifications of the regional subculture of violence thesis (Corzine et al., 1999). Only more recently have researchers begun to analyze regional variations in homicide with attention given to differences in race (O'Carroll & Mercy, 1989; Nelsen, Corzine, & Huff-Corzine, 1994; Parker & Pruitt, 2000) or the form of homicide (Smith & Parker, 1980; Parker, 1989; Rice & Goldman, 1994).

Additionally, the historical context of this theory implies that the influence of culture should be more pervasive in non-urban settings. The southern subculture of violence is rooted in rural and small town lifestyles. As Gastil notes, it is the *rural* South that has been historically associated with higher homicide rates (1971, p. 414). In fact, the impact of the values and norms of such a culture would likely be diluted by the diversity found in urban settings. Moreover, urban homicides are more likely to involve both Black offenders and victims (Lattimore, Trudeau, Riley, Leiter, & Edwards, 1997), and recent research has shown little regional cultural influence on Black homicide (Parker & Pruitt, 2000).

In the present study, we will examine the influence of region on race- and sex-specific argument-based homicide, paying particular attention to non-urban/urban differences. We believe that in investigating the effect of southern subculture on lethal violence, even greater specificity needs to be given to the type of homicide being analyzed. Since we are interested in exploring the impact of cultural factors for non-urban areas, we will make use of county-level data for our analyses. Moreover, taking our lead from the debate over whether regional differences are due to culture or social structure (Loftin & Hill, 1974; Corzine et al., 1999), we will control for key structural factors.

REVIEW OF THE LITERATURE

Interest in regional variation in homicide in the United States can be traced back to the 19th century. Redfield (1880), who conducted what was at the time the most in-depth study of lethal violence, demonstrated that homicide was more pronounced in the South. In fact, Redfield concluded that perhaps the most distinguishing difference between southern and northern culture was on "this one matter of homicide" (1880, p. 18).

[1]Although historically, in some cases, women could be victimized as well. Reed points out that in cases of adultery in colonial Louisiana, if an aggrieved husband killed his wife's lover, he was obligated to kill her as well (1981, p. 11).

He argues that in the South, the use of violence has deep historical roots. This can be traced to the presence of slavery and the acceptability of violent behavior toward Blacks living under White control. Such acts indicate a lack of regard for human life. With the abolishment of slavery, he noted that higher incidence of homicide still persisted in southern region (1880, p. 115). The acceptability of violence that is embedded in southern culture transcends racial lines, such that killings also involve intraracial relationships between victim and offender. This pattern continued into the 20th century, with numerous studies noting the disproportionately higher rates of homicide in the South (Brearley, 1932; Gastil, 1971; Hackney, 1969; Hoffman, 1925; Kowalski, Dittman, & Bung, 1980; Porterfield, 1949; Shannon, 1954;).

Although by the early 1990s, some studies also found an elevated rate of homicide in the West (O'Carroll & Mercy, 1989; Kowalski & Petee, 1991; Nelsen, Corzine, & Huff-Corzine, 1994; Parker & Pruitt, 2000), this trend seems largely to result from the racial composition and structural conditions in that region. While similarities exist between the western and southern regions in terms of homicide rates, the contributing factors appear to be different.

By contrast, the consistently high rates of homicide in the South have often been attributed to the impact of culture. Factors such as attitudes favoring aggression, values supporting violence, and expectations for violent behavior in certain contexts are identified/designated as having a cultural influence. Perhaps the most controversial proponent of the cultural perspective has been Gastil (1971). Gastil advocates that the high rates of homicide in the South are primarily attributable to a "regional subculture of lethal violence." According to Gastil, this culture has its origins in past centuries, where lethal violence was an important subtheme in the South, developing out of an exaggerated sense of honor, and more indirectly by an affinity with weapons. Gastil's "regional subculture of violence" has come to be more commonly referred to as the "southern subculture of violence."

It is noteworthy that the cultural perspective on lethal violence has its share of critics. Some of these opponents maintain that the seemingly significant relationship between region and homicide may actually be due to structural factors such as poverty, racial and age composition (see Loftin & Hill, 1974). This in turn sparked a "structure versus culture" debate, which, at the very least has led to the inclusion of structural control variables in subsequent studies of regional variation in homicide. However, as Corzine et al. (1999) note, research seems to indicate that southernness increases the homicide rate even when structural variables are controlled for.

As noted earlier, the "southern subculture of violence" does not seem to apply to homicide in general, but rather to particular circumstances in which this type of violence is condoned. Historically, homicides in the South were characterized as being more likely to result from an argument-based context. Redfield suggests that the higher rate of homicide in southern states was largely due to situations such as "personal difficulties" with deadly weapons, street-fights, and affrays" (1880, p. 17). Likewise, in examining the types of homicide that occur in the Southern states, Reed observes, "arguments and lovers" quarrels and family disputes are dangerous business in the South" (1981, p. 13). Reed maintains that southerners learn that

certain kinds of disputes are supposed to be settled privately and perhaps violently (Reed, 1981).[2] More recently, Rice and Goldman (1994) demonstrate that southern homicides are more likely to result from argumentative circumstances. Using homicides from the Supplementary Homicide Reports (SHR) disaggregated by circumstance, they found homicides in the South tended to involve conflict situations such as brawls due to the influence of drugs or alcohol, various kinds of arguments, and love" triangles.

The issue of disaggregation has increasingly become a major factor in the study of cultural influences on homicide. Several studies have suggested that regional comparisons of homicide should be race-specific. O'Carroll and Mercy (1989) found higher rates of homicide in the West for Whites, Blacks, and the residual racial category. Nelsen et al. (1994) demonstrate disparities in the regional patterns of homicide for Whites and Blacks, with White homicides being more predominant in the South, and Black homicides having no significant regional differences. In what is perhaps the most definitive study to date on this question, Parker and Pruitt (2000) found that explanations for White homicide rates vary by region. In the western region, White homicide rates were primarily influenced by structural factors, but in the South, cultural factors may be more salient. By contrast, Black homicide rates were explained by structural disadvantage, although the nature of these structural factors varied by region.

However, we would argue that the specification of the southern subculture of violence should go beyond disaggregation by circumstance and race. For a more comprehensive picture, sex-specific and location factors need to be examined in conjunction with circumstance and race. In particular, these factors are believed to be linked specifically to argument-based homicide.

Reflecting on the "southern subculture of violence" theme, not only does it suggest argument-based homicides, but it also implies that the offender should be male. In an environment that condones the use of violence to "defend one's honor" or "manhood," it is far more likely that this type of homicide would involve a male offender. Further, this theme suggests that such a situation will most often involve a victim and offender of the same sex (i.e., male-on-male).

The theme of the "southern subculture of violence" also suggests that urban/non-urban location may be a key consideration. The writings of key theorists in this area--in particular, Redfield (1880) and Gastil (1971)--seem to suggest that this tradition is connected to a rural lifestyle. Moreover, while the South in general is argued to have a culture supporting violent behavior, it is likely that this culture impacts differently in urban versus non-urban areas. Non-urban areas have a much more homogenous population such that there would be less diversity in terms of cultural climate, leading to a stronger influence. The presence of common values among individuals living in non-urban areas would then strengthen conformity to favorable attitudes and norms toward violent behavior. By contrast, urban areas are characterized by diversity (i.e., the melting pot), and consequently it is not as likely that such a location would be a place where one

[2]In fact, research that examines southern tolerance toward violence without specifying the conditions under which such violence is condoned (e.g., Dixon & Lizotte, 1987) has generally been met with skepticism (Corzine & Huff-Corzine, 1989; Ellison & McCall, 1989).

unique culture dominates. As a result, there is likely to be more differentiation in circumstances surrounding homicides. Moreover, homicides in urban areas tend to disproportionately involve Black offenders and victims (Lattimore et al., 1997). If Parker and Pruitt (2000) are correct, the influence of cultural factors will be negligible for these types of homicides.

DATA AND METHODS

The data for our analyses were derived from the Supplementary Homicide Reports (SHR). Homicides for the years 1991-1993 were disaggregated by circumstance (i.e., argument-based), race and sex at the county-level (n = 3133). Counties represent the primary divisions for states, and compared to larger geographic units are relatively homogeneous.. Moreover, they are nearly ideal for the present analyses since we intend to examine urban/non-urban differences in homicide. A 3-year sum of homicides was employed to address the possibility of random year-to-year fluctuations.

Instead of calculating a homicide rate for each county, we instead elected to use the actual frequency of homicide. There are several methodological concerns that led us to this decision. As Osgood (2000) notes, OLS regression techniques may be inappropriate when the rate of an event is calculated from a small number of events. In our case, if a county is relatively small (i.e., a population of a few thousand), a single event can result in a large increase in the rate. Of course, when matched with the rate of a larger geographic unit, the comparison could be misleading. Moreover, the variability of population sizes across counties could result in violating the OLS assumption of homogeneity of error variance. There is also the possibility that as populations decrease, a rate of zero will occur with some frequency, thus violating the normality assumption (Osgood, 2000). This is compounded in our case by the use of highly specific disaggregated homicides.

Because our data contained a relatively high proportion of zero counts for our unit of aggregation, we employed negative binomial regression for our analyses. Negative binomial regression is a form of Poisson regression. Poisson techniques are designed for the use of count data, and do not assume the homogeneity of error variance. The negative binomial variant is better suited for the overdispersion of the difference between fitted and observed data (Osgood, 2000; Kleinbaum, Kupper, Muller, & Nizam, 1998).

We disaggregated homicide at several levels. The first step involved selecting out cases of argument-based homicides. The SHR includes five circumstances of homicide which fit this definition: homicides resulting from love triangles, brawls due to the influence of alcohol, brawls due to the influence of narcotics, arguments over money or property, and the residual "other arguments." The data were then further disaggregated by the sex of the offender and the victim, selecting out cases of male-on-male, male-on-female, female-on-female, and female-on-male homicides. These four conditions represent the first four dependent measures used in our analyses, essentially used to determine if there are any regional effects for homicides resulting from arguments based upon victim's and offender's sex. Finally, we further disaggregated these data by offender and victim race, to determine if there were any race-specific patterns of note. Because interracial homicide does not occur with any great frequency for the type of homicide being examined (i.e., less than 8% of all homicides examined), we decided to use only intraracial

homicides. The result was eight race- and sex-specific categories of argument-based homicide: White male on White male, White male on White female, White female on White male, White female on White female, Black male on Black male, Black male on Black female, Black female on Black male, and Black female on Black female.

Our two primary independent variables were percentage born in the South and percentage conservative Protestant. The first variable represents a finer grain method of measuring southern subculture than the more commonly used regional dummy variable. Percentage conservative Protestant was employed to measure the unique influence of religion on Southern culture (see Weaver, 1997). Moreover, conservative Protestant affiliation has been shown to be linked to punitive attitudes (Grasmick & McGill, 1994). This variable was derived from the 1990 Churches and Church Membership in the United States survey (Bradley, Green, Lynn, & McNeil, 1992).

Additionally, we used several structural control variables:

- *Log of the population*: Used to control for population size.[3] This is a key control variable since we did not control for population size in our dependent variables. Census data for 1990 were used for this variable.
- *Log of the population density*: Use of population density traces back to Wirth's (1938) influential work on urbanism. The relationship between population density has been well-documented (Beasley & Antunes, 1974; Cohen & Land, 1984). Data for this variable were derived from the 1990 Census. In our case, density is a key factor because of the widely disparate size of the county units.
- *Poverty*: Socioeconomic variables have consistently been found to be associated with lethal violence (Weaver, 1997). This variable is measured by the percentage of the 1990 county population in poverty. These data were obtained from the 1990 Census of Population and Housing (U.S. Census Bureau, 1991).
- *GINI index*: This is a measure of economic inequality in a county. As with our poverty measure, the data were obtained from the 1990 Census of Population and Housing (U.S. Census Bureau, 1991).
- *Percentage Black*: This variable is used as a control for the proportion of the population that is Black. This is a key consideration because of the disproportionate representation of African Americans as both offenders and victims in homicide statistics.
- *Percentage of single-parent families*: Typically used in research as a measure of social control (or the lack thereof) in households. This variable has also been used in routine activities models (see Cohen & Felson, 1979) to indicate a lack of guardianship.

[3]It should be noted that it is fairly common to include population as a control variable even when examining homicide rates. However, since population is a component of the homicide rate, it would seem as though this redundancy could compromise the integrity of the statistical model.

FINDINGS

This study employs a number of variations of a common model to determine the extent to which homicides disaggregated by offender/victim sex, offender/victim race and sex, and by area are related to variables consistently found to be associated with homicide generally. In that regard, models will be discussed in groups, focusing on specific race- and/or sex-specific victim/offender categorizations. Please note that the Likelihood Ratio Test for all models indicates that negative binomial regression analysis is appropriate.

As reflected by the left half of Table 1, log county population (b = 1.229), percent of the population born in the south (b = .011), and percent of children living in single parent households (b = .061) are positively and significantly related to homicides in which both the offender and victim are males (MOMV). On the other hand, population density (b = -.067) is negatively and significantly related to homicides of this category. The right half of Table 1 shows that for homicides involving male offenders and female victims (MOFV), the results are very similar to the male-on-male data, but in this model the percent of the county population in poverty is negative and significant (b = -.021). For both models, percent born in the South appears to be a fairly strong predictor of homicide as indicated by the z-scores.

TABLE 1. Negative Binomial Regression for Male Offenders

Male on Male				Male on Female			
Variable	**Coeff**	**S.E.**	**Z**	**Variable**	**Coeff**	**S.E.**	**Z**
Log Pop	1.229*	.032	38.671	**Log Pop**	1.142*	.037	30.786
Log Density	-.067*	.027	-2.528	**Log Density**	-.131*	.032	-4.106
% South	.011*	.001	10.632	**% South**	.009*	.001	7.549
% Black	-.002	.003	-.566	**% Black**	.002	.004	.627
% Poverty	-.001	.005	-.257	**% Poverty**	-.021*	.006	-3.463
GINI	.014	.010	1.356	**GINI**	.018	.012	1.599
Single-Parent Families	.061*	.008	7.534	**Single-Parent Families**	.046*	.009	5.046
Conservative Protestant	-.001	.002	-.578	**Conservative Protestant**	-.004	.002	-1.582
Constant	-13.985			**Constant**	-12.865		
Alpha	.745*			**Alpha**	.784*		
Pseudo r^2	.247			**Pseudo r^2**	.228		

*** p < .05**

The left half of Table 2 shows that for homicides involving female offenders and male victims (FOMV) population (b = 1.163), percent of the county population born in the South (b = .010), percent of children in single parent families (b = .058), and percent of the population affiliated with a conservative Protestant denomination (b = .010) are positively and significantly related to the dependent variable, and that percent in poverty (b = -.020) is negative and significant. The right half of Table 2 reveals that for homicides involving female offenders and female victims (FOFV), percent of the population born in the South is no longer significant, and that the Gini Index of Inequality (b = -.042) is negative and significant. As in the left half of the table, population (b = 1.144), children living in single parent families (b = .050), and percent of the population affiliated with a conservative Protestant denomination (b = .010) remain positively and significantly related to the dependent variable.

TABLE 2. Negative Binomial Regression for Female Offenders

	Female on Male				**Female on Female**		
Variable	**Coeff**	**S.E.**	**Z**	**Variable**	**Coeff**	**S.E.**	**Z**
Log Pop	1.163*	.044	26.254	**Log Pop**	1.144*	.062	18.532
Log Density	-.047	.041	-1.154	**Log Density**	.015	.060	.252
% South	.010*	.001	6.775	**% South**	.003	.002	1.306
% Black	.006	.004	1.358	**% Black**	.011	.007	1.572
% Poverty	-.020*	.009	-2.309	**% Poverty**	-.010	.014	-.768
GINI	.009	.015	.638	**GINI**	-.042*	.022	-1.955
Single-Parent Families	.058*	.012	4.951	**Single-Parent Families**	.050*	.017	2.956
Conservative Protestant	.010*	.003	3.373	**Conservative Protestant**	.010*	.005	2.072
Constant	-14.946			**Constant**	-13.798		
Alpha	.506*			**Alpha**	.589*		
Pseudo r^2	.300			**Pseudo r^2**	.312		

***p < .05**

The next series of models are race- and sex-specific for both offenders and victims. Turning to Table 3, the left half of this table shows homicides involving White male offenders and victims (WMWM), respectively, the dependent variable is significantly and positively related to population (b = 1.312), percent of the population born in the South (b = .010), percent in poverty (b= .012), and children living in single parent families (b = .036). Furthermore, the

respective relationships between WMWM and log density (b = -.244) and percent Black (b = -.028) are negative and significant. The right half of Table 3 reflects a similar pattern for homicides involving a White male offender and a White female victim.

TABLE 3. Negative Binomial Regression for White Male Offenders

White Male on White Male				White Male on White Female			
Variable	**Coeff**	**S.E.**	**Z**	**Variable**	**Coeff**	**S.E.**	**Z**
Log Pop	1.312*	.036	36.108	**Log Pop**	1.191*	.043	27.846
Log Density	-.244*	.031	-7.843	**Log Density**	-.213*	.036	-5.855
% South	.010*	.001	9.252	**% South**	.010*	.001	7.566
% Black	-.028*	.004	-7.543	**% Black**	-.028*	.004	-6.430
% Poverty	.012*	.005	2.251	**% Poverty**	-.018*	.007	-2.588
GINI	.004	.011	.322	**GINI**	.013	.013	1.025
Single-Parent Families	.036*	.009	4.072	**Single-Parent Families**	.032*	.010	3.114
Conservative Protestant	-.001	.002	-.142	**Conservative Protestant**	-.004	.003	-1.474
Constant	-13.779			**Constant**	-12.815		
Alpha	.781*			**Alpha**	.876*		
Pseudo r^2	.232			**Pseudo r^2**	.210		

*** p < .05**

With two exceptions, homicides involving a White female offender and White male victim (WFWM) follow a similar pattern. In this instance, however (see the left half of Table 4), percent in poverty is not significant, and the percent of population affiliated with a conservative Protestant denomination is, in this model, positive and significant (b = .008). For White female offenders and White female victims (WFWF), the right half of Table 4 shows that the log of the 1990 population is a major influence on homicide (b = 1.174). Interestingly, none of the remaining independent variables are significant.

TABLE 4. Negative Binomial Regression for White Female Offenders

White Female on White Male				White Female on White Female			
Variable	**Coeff**	**S.E.**	**Z**	**Variable**	**Coeff**	**S.E.**	**Z**
Log Pop	1.303*	.049	26.477	**Log Pop**	1.174*	.083	14.147
Log Density	-.298*	.047	-6.400	**Log Density**	-.096	.080	-1.204
% South	.012*	.002	7.129	**% South**	.004	.003	1.475
% Black	-.022*	.005	-4.090	**% Black**	-.016	,010	-1.513
% Poverty	-.006	.009	-.619	**% Poverty**	-.020	.018	-1.099
GINI	-.019	.016	-1.171	**GINI**	-.032	.029	-1.109
Single-Parent Families	.039*	.013	3.043	**Single-Parent Families**	.029	.024	1.232
Conservative Protestant	.008*	.003	2.411	**Conservative Protestant**	.012	.006	1.799
Constant	-14.380			**Constant**	-13.878		
Alpha	.275*			**Alpha**	1.055*		
Pseudo r^2	.275			**Pseudo r^2**	.252		

***p < .05**

Turning to sex-specific homicides for African American offenders and victims, the left half Table 5 (BMBM) depicts a number of important changes. All independent variables included in the model for male offenders and male victims are significant, and, with the exception of percent in poverty (b = -.043), each is positive. The right half of Table 5 reflects a similar pattern in homicides involving African American male offenders and female victims (BMBF) – with the only exception being that conservative Protestant affiliation is not significant. For the models for African American female offenders with male and female victims, respectively (BFBM and BFBF), Columns 1 and 2 of Table 6 show a similar pattern. As before, Column 1 shows that all independent variables are significant, excluding the Gini Index of Inequality. In Column 2, the log of the population (b = 1.171), percent Black (b = .033), children living in single parent families (b = .065), and conservative protestant affiliation (b = .015) are significant.

TABLE 5. Negative Binomial Regression for Black Male Offenders

Black Male on Black Male				Black Male on Black Female			
Variable	**Coeff**	**S.E.**	**Z**	**Variable**	**Coeff**	**S.E.**	**Z**
Log Pop	1.130*	.050	22.765	**Log Pop**	1.003*	.059	16.972
Log Density	.328*	.045	7.221	**Log Density**	.273*	.056	4.868
% South	.014*	.002	8.290	**% South**	.012*	.002	5.503
% Black	.039*	.005	7.572	**% Black**	.051*	.006	8.035
% Poverty	-.043*	.010	-4.226	**% Poverty**	-.043*	.013	-3.334
GINI	.036*	.017	2.148	**GINI**	.045*	.021	2.189
Single-Parent Families	.081*	.014	5.848	**Single-Parent Families**	.041*	.017	2.470
Conservative Protestant	.010*	.003	3.058	**Conservative Protestant**	.007	.004	1.636
Constant	-17.710			**Constant**	-16.581		
Alpha	1.091*			**Alpha**	1.228*		
Pseudo r^2	.313			**Pseudo r^2**	.309		

***p<.05**

TABLE 6. Negative Binomial Regression for Black Female Offenders

	Black Female on Black Male				Black Female on Black Female		
Variable	**Coeff**	**S.E.**	**Z**	**Variable**	**Coeff**	**S.E.**	**Z**
Log Pop	1.073*	.069	15.547	**Log Pop**	1.171*	.095	12.273
Log Density	.378*	.067	5.668	**Log Density**	.158	.099	1.599
% South	.012*	.003	4.703	**% South**	.005	.004	1.327
% Black	.045*	.007	6.056	**% Black**	.033*	.010	3.270
% Poverty	-.032*	.015	-2.095	**% Poverty**	-.006	.022	-.299
GINI	.013	.024	.552	**GINI**	-.062	.033	-1.853
Single-Parent Families	.048*	.020	2.465	**Single-Parent Families**	.065*	.026	2.511
Conservative Protestant	.023*	.005	4.564	**Conservative Protestant**	.015*	.008	2.004
Constant	-17.946			**Constant**	-16.045		
Alpha	.966*			**Alpha**	.808*		
Pseudo r^2	.366			**Pseudo r^2**	.370		

***p < .05**

The final models shown in Table 7 disaggregate the total homicide counts for urban versus non-urban counties. For urban counties, all variables except percent Black and the Gini Index of Inequality are significant. In non-urban counties, a similar pattern is present, except for percent Black being nonsignificant. It is interesting to note that the z-score for the percent born in the South variable was higher in the non-urban model (z = 11.855 for non-urban, compared to z = 4.749 for urban counties).

TABLE 7. Negative Binomial Regression for Urban/Non-Urban Counties

Urban Counties				Non-Urban Counties			
Variable	**Coeff**	**S.E.**	**Z**	**Variable**	**Coeff**	**S.E.**	**Z**
Log Pop	1.127*	.047	23.987	**Log Pop**	1.393*	.066	21.245
Log Density	.181*	.41	4.370	**Log Density**	-.520	.053	-9.874
% South	.009*	.002	4.749	**% South**	.018*	.002	11.855
% Black	.008	.007	1.287	**% Black**	.003	.004	.589
% Poverty	.046*	.013	3.607	**% Poverty**	-.010	.006	-1.667
GINI	-.019	.019	-1.043	**GINI**	.031*	.015	1.991
Single-Parent Families	.034*	.016	2.183	**Single-Parent Families**	.036*	.011	3.249
Conservative Protestant	.009*	.004	2.146	**Conservative Protestant**	-.005	.002	-1.857
Constant	-13.225			**Constant**	-14.591		
Alpha	.680*			**Alpha**	1.206*		
Pseudo r^2	.184			**Pseudo r^2**	.142		

***p < .05**

CONCLUSIONS

The results of our analyses demonstrate the benefit of further specification in the southern subculture of violence model. Disaggregation by offense type (i.e., argument) and sex show the influence of the percent born in the South variable for all categories except female-on-female homicides. Although we suggested that male-perpetrated homicide would be more consistent with the subculture thesis, the South variable was significantly predictive of female-on-male homicides. However, it may be the case that the dynamics of male-on-female and female-on-male homicides may be the same, but with different outcomes.

Surprisingly, the percent born in the South variable was significantly predictive of most of the offender-victim categories, regardless of race. That is, this variable was significant for both White and Black homicides, with the exception of female-on-female cases. Thus it appears that the findings of Parker and Pruitt (2000) do not apply to all types of homicide.

The southern influence was also significant for both urban and non-urban homicides. Although this was contrary to expectation, the relative impact of this variable appears to be

greater for the non-urban model, as indicated by the z-score. Moreover, McCall, Land, and Cohen (1992), report the increasing influence of the southern subculture in cities. It may be that there has been a convergence between urban and non-urban areas when it comes to this subcultural influence.

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DISCUSSION

Question: Generally speaking, Gary, how would you characterize the nature of the relationship between religion and suicide?

Gary Jensen: Overall, religious integration is inversely related to suicide. In some ways, this is related to the idea that certain forms of religious belief encourage the notion that problems are often attributed to malevolent external forces.

Avianca Hansen: Which religions are most likely to promote this belief?

Gary Jensen: For the most part, monotheistic religions are more likely to promote external notions of causality. Also, fundamentalism tends to increase this as well.

Mieko Bond: Aren't there problems associated with using cross-national data?

Gary Jensen: Yes.

Dick Block: The good-versus-evil measure used by Gary in his paper is very interesting. However, ambiguity and tolerance are not necessarily related to religious belief.

Gary Jensen: True, but one can see how this process can work in a number of ways. For example, religion may serve as a constraint that serves to keep someone in relationships where murder occurs.

Roland Chilton: Gary, could you further explain the influence of good versus evil?

Gary Jensen: Describing what is good and/or evil is quite difficult. There are a number of factors that relate not only to its definition, but the reaction to it. In the United States and South Africa, these definitions tend to be dichotomized. Conversely, in Europe, good and evil are more likely to be viewed as a continuum. Obviously, identifying clear guidelines as to what constitutes good and evil is quite elusive.

Lin Huff-Corzine: As many of us already know, the regional effect of homicide applies to certain types, but not others. Also, the level of disaggregation is important. One would expect differences according to race and gender of the offender/victim. The level of analysis is important as well. In my opinion, the county is the preferable level of analysis because it addresses the well-known shortcomings of using either city/metro or state-level data.

Vance McLaughlin: Jay, in recent years, in Savannah, homicides committed by White male offenders have declined. Does this indicate that a city loses its southern culture?

Jay Corzine: A number of studies suggest that the influence of southern culture should dissipate over time as migration changes the composition of the population.

Brian Wiersema: In his study of the "herding culture" and violence, Nisbet focused on and identified the importance of argument-based homicide.

Lin Huff-Corzine and Tom Petee: Overall, the regional effect is strong and consistent--even when data are disaggregated.

Dick Block: Doesn't the influence of region apply more to argument-based homicides? I believe a number of studies show no relationship between region and robbery-based homicide.

Dwayne Smith: As suggested by Ken Land, the southern influence should be less relevant now than it was in the past. How then, is the increase in the western states explained? Migration?

Jay Corzine: In the Southwest and West, the percent of the population that is Hispanic is an important factor.

Derral Cheatwood: How is percent born in the South defined?

Greg Weaver: Based on the Census designation for the southern region.

Mieko Bond: Violence is more accepted in the South, particularly in situations when one feels his honor is being confronted.

Roland Chilton: What do we really mean by the "subculture of violence"? Is there a "culture of honor" among African Americans, similar to what Elijah Anderson suggested?

Lin Huff-Corzine: It seems we are illustrating how difficult it is from a research standpoint to identify what we mean by the "South." Culture, socialization, and food are all examples.

Gary Jensen: Violence as a response to honor violation and disrespect seems particular to southern culture.

CHAPTER SIX

VIEWS ON HOMICIDES INVOLVING UNDERRESEARCHED GROUPS

DATA-SET CONSTRUCTION IN HOMOSEXUAL HOMICIDE CASES: SHEDDING THE POLITICAL ISSUE OF MOTIVE. Research in Progress

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ABSTRACT

The heated issue of offender motivation often clouds studies of homosexual homicide. Examining homicides by considering the criterion of homosexuality as demographic element, in place of motive, may help provide much needed clarity. This paper explores problems associated with defining and measuring this type of homicide as well as outlining the results of several preliminary search strategies.

OVERVIEW

Sexual minorities--including homosexual, bisexual, and transsexual persons--are disproportionately affected by violence due to the very nature of their minority status (Anderson, 1982). It follows that sexual minorities would also be disproportionately affected by lethal violence, and that "the significant variable in their differential victimization is their homosexuality" (Sagarin & MacNamara, 1975, p. 16). Yet we are still lacking information.

Constructing data sets of homicide incidents involving stigmatized or marginalized groups is an arduous task. They are required if we are to confront this issue. The problem is comprised of three major parts: defining the dependent variable (homosexual); consistent law enforcement documentation and records access; and institutional dysfunctions, social pressures, and politics within the gay community. The solution is found in part by employing the Constraint-Composition Theory, which asserts that a problem is composed of all the constraints on its solution (Nickles, 1981). The ability of investigators to solve homosexual homicides, regardless of motive, is constrained by how this type of homicide incident is conceptualized.

The heated issue of offender motivation often clouds studies of homosexual homicide. Because many homosexual homicides remain unsolved (Dunlap, 1995; Tomsen, 1994), motive, which underlies intent, is extremely difficult to ascertain. Detectives often struggle to identify offenders in what are referred to as *motiveless* homosexual deaths, sometimes leading investigators to falsely attribute the death to contrived motives. Increasing the level of scientific abstraction could assist in reducing political pressure on the research question. Examining all homosexual cases, which exhibit all types of motive, may help provide much needed clarity.

Political pressure to assign motive in a homosexual homicide comes from many perspectives, including family members, police, community, and the offender. The motive in hate-crimes can lead to increased penalties. The hate-crime designation involves more work for

police, increased case publicity, and the possibility of federal intervention by the U.S. Department of Justice. Officers may feel, due to personal bias, that homosexuals obtain an unwarranted master status via the hate-crime designation. The gay community may indeed seek to elevate case status in some instances, but ignore homicide motives in other, more tawdry, ones. For example, cases where the offender was homosexual, where victims were enslaved for sexual purposes, or where victims were minors, are often repressed or ignored by the gay community. Motive does matter, but it should be a variable, not an inclusion criterion, of the data set.

Everyone has an interest in why a victim is killed. This work tries to properly locate hate-crime homicide and intimate-partner homicide as only distinct types of homicides under a parent category of homosexual homicide. Anti-gay hate-crime homicide, sometimes termed homophobic homicide, has received considerable research attention and has been analyzed in several studies previously. Homosexual homicide, however, has not received the same degree of emphasis. By abstracting the research category to the next level, the intent is to reduce or eliminate political obstacles in homosexual homicide research.

The usefulness of hate-crime studies is limited in two crucial ways. First, examining hate-crimes does not allow us to determine what proportion they compose the incidence of homosexual homicides. Second, its use is insufficient for explaining homicide data in non-hate based categories such as intimate-partner homicide. When we lack precise demographic categories the two groups are incomparable. In the case of intimate-partner homicide, being able to rule out certain gay cultural factors is not possible using the variable of motive, of which hate-crime is a label. The comparable dichotomous category for the variable *heterosexual* would be *homosexual*, not hate-crime.

Criteria for a hate-crime homicide include requiring overt indications or gestures evidencing the attempt to cause harm to the group of which the victim is a member. In spite of this particular motive, but without overt evidence, the homicide becomes statistically invisible. If an offender kills a gay man without calling him a *faggot*, the incident is not considered a hate crime.

LITERATURE AND EXISTING DATA SETS

The literature reveals few research reports on homosexual homicide. Much of the literature on homosexual homicide was provided by freelance writers and journalists, or speculative accounts by forensic psychiatrists. Various other newspaper studies have reviewed lists of compiled cases using no reliable methodology. For instance, one unpublished report from a news article purportedly identified 59 cases. The author, Paul Gordon, was a West Hollywood gay journalist. No trace of the author or its publication can be found.

Vernon Geberth published an article on homosexual homicide to examine homosexual serial murder investigation (Geberth, 1995). Geberth is probably one of the few researchers to use the term “homosexual homicide” outside of its hate-crime meaning. His paper is predominantly a listing of case examples accompanied by slight analysis, and he includes many loaded and judgmental terms (Baeza & Turvey, 1999).

Of the studies focusing on the topic of hate-crime, many have been published including Mousos and Thompson's *Gay-hate Related Homicides: An Overview of Major Findings in New South Wales* (2000); Mason's *Violence Against Lesbians and Gay Men, Trends and Issues* (1993); Mott's *Epidemic of Hate: Violations of the Human Rights of Gay Men, Lesbians, and Transvestites in Brazil* (1997); and Bell and Vila's *Homicide in Homosexual Victims: A study of 67 cases from the Broward County, Florida Medical Examiner's Office (1982-1992), with Special Emphasis on "Overkill,"* (1996); and Gemert's *Chicken Kills Hawk: Gay Murders During the Eighties in Amsterdam* (1994).

Miller and Humphreys (1980) collected data on hate-crime homicide from six gay community newspapers, 11 metropolitan newspapers, and the files of two cooperating police departments, over a 5-year period culminating in a total of 161 cases of homicide. Their study, however, only included 52 homosexual homicides, all hate-crimes, once various categories such as arson and mass homicide were excluded. They warned that their findings should be considered tentative only. Female victims and offenders were not included in their study only because they were unable to identify any.

All large homicide data sets contain raw information about homosexual homicides because of their inclusion of all homicide cases. However, if no effort has been made to include a homosexual orientation or same-sex behavior as variables, we cannot determine the incidence of homosexual homicide from the data set. In some cases, efforts were made to include information on sexual orientation but did not go far enough. For instance, the Chicago homicide data set (Block & Block, 1998, p. 22), the largest data set of its kind in the United States, contains a category of "relationship of the victim to the offender." According to the data codebook, the relationship is only coded homosexual if it is judged to be relevant to the incident. If another category seems more pertinent, then it is used. For example, a victim might be coded as "cab driver," instead of "homosexual acquaintance," if sexual orientation was not the primary factor in the homicide.

National guidelines for death investigation (National Institute of Justice, 1999) view social and sexual history as relevant aspects to be investigated by the medical examiner, county coroner, or other death investigator. This represents a belief that information about sexual status is pertinent to the cause and manner of death, and to the identification of motive. Since these guidelines are entirely voluntary, many jurisdictions have yet to adopt them.

METHOD

Normally, one might only need to obtain data directly from official records. However, these records do not always contain information about sexual orientation. Thus, we need to use multiple sources to make that determination (Bell & Vila, 1996).

The strategic search method used in locating and identifying these cases has developed over time by employing Grounded Theory (Glaser & Strauss, 1967; Haig, 1995). Grounded Theory, an inductive method, is useful where no other data exist. Incipient data are gathered

from a variety of sources, coded, and analyzed. Thus, independent variables evolve out of the data.

Methods for determining how and why cases are missing are examined using a case-recovery analysis. Cases are examined for indications of how they become lost, and how they are subsequently re-identified. Several strategies are used to show how the problem is constituted using a function/dysfunction dichotomy.

The universe for this study is defined as the state of Minnesota. Data have also been collected for four cities bordering the state in an effort to increase pool size, although the utility of this effort is somewhat uncertain. The following terms were developed to describe elements of this search and are herein defined:

> *Homosexual*: A relational term used to describe a person who is sexually attracted to a member of the same sex, including persons questioning or uncertain of their sexual orientations.
>
> *Homicide*: The intentional killing of another human being, proof of which is stated on the death record as determined by the coroner or medical examiner.
>
> *Case*: A homicide incident involving a homosexual as victim, offender, or as an element of the incident.
>
> *Homosexual Homicide Incident*: A homicide where a homosexual aspect was an element associated centrally or incidentally with the crime incident.

The search strategy was recorded as it developed and constantly refined based on the results. Potential homosexual homicide cases emerged from five basic sources including:

1. Community historian's memory and records
2. Newspaper accounts, gay and non-gay
3. Anti-violence records
4. Sheriffs' survey
5. Death records

FINDINGS

Only two of the five strategies employed will be presented here.

A gay community historian in Minneapolis was asked to compile a list of all the homosexual, bisexual, or transsexual homicides in Minnesota. He was then interviewed to determine how each case was identified. Most of the cases occurred from 1972-1992 and came from urban gay press reports. The cause of death was then verified using Minnesota Department of Health death records. *Not all cases have been verified as homosexual cases.*

Halfhill Historical Survey Evaluation
1972-1992, Case Total = 65

Homicides	52	80%
Undetermined	3	4%
Suicides	2	3%
Accidental	3	4%
Missing Data	5	8%
Error Rate	13	19%

Percent adds to 99 due to rounding.

As part of the strategic search, all sheriffs' departments from Minnesota were surveyed to identify homosexual homicides that occurred in their jurisdictions. The survey was first mailed in early February 2000 to all 87 counties. It gave respondents 30 days to complete a search for cases of homosexual homicide and respond back. The first query prompted 21 responses, eliciting one homosexual homicide case. One department reported a single case, which was previously unidentified, but failed to report one case, which was known to have occurred.

A follow-up survey was mailed to non-responding departments in May 2000. This yielded 28 additional responses, eliciting two cases: one new and one known. Both cases occurred outside of the parameters of the Halfhill Survey. The new case was interesting in that it involved a known pedophile as a victim. The sexual identity of the homicide victim is not defined, just his behavior. Some same-sex pedophiles are male preferential and some are not. It was not identified by any other surveys employed.

The response rate from the Sheriffs' survey was high in non-urban counties. However, no surveys were returned from Minneapolis/St. Paul metropolitan area sheriffs' departments. A phone call from one county reported one victim case. It is within these seven urban and most populated counties that approximately two thirds of all the state's homicides occur.

Results of the Sheriffs' Survey*
1969-2000, Case Total = 4

	Homosexual Victim	Homosexual Offender	Homosexual Incident
Previously Unknown	1	0	1
Previously Known	0	1	0
Missing particulars	1	0	0

**49 of 87 Counties Responded (56% response rate)*

DISCUSSION

The conceptual foundation of this research topic seems sound. Several logistical problems with collecting and interpreting the data make it a very difficult data set to construct.

Especially problematic is how to identify the sexual orientation of either a dead victim or a criminal offender using a scientifically reliable method.

The meaning of same-sex sexual behavior and the interpretation of sexual identity from sexual behavior are issues still needing to be understood. Problematic definitions that encompass sexual identity also need continued exploration.

Considering the continuum of human sexual orientation, same-sex sexual thoughts, sexual fantasies, and sexual attractions will likely forever be beyond our detectable reach. It is still not certain how it will be known that all of the homosexual homicide incidents have been identified. For now, it may be best to rely on sexual behavior or an overt display of homosexual identity.

Homosexual behavior may be easier to detect. Signs of sexual activities between two members of the same sex should qualify as homosexual behavior. Lack of attire, sexual positioning, evidence of sexual fluids, presence of erotica, sexual devices, or other paraphernalia may all be indicators (Ressler, 1986; Ressler, Burgess, & Douglas, 1988). Some question exists whether same-sex rape is sexual behavior. Power and control is obtained precisely because of the sexual content of the act, and, therefore, the action should be considered homosexual.

Similarly, a same-sex sexual assault using a proxy instrument may not make the victim homosexual, but it may indicate an expressive sexual ideation on the part of the offender. At the least, the incident should be labeled as a *homosexual incident* until further understanding of this issue is developed.

Other interesting questions include determining exactly how cases become missing and why? Is there a selection or correlation bias in the detection and obtaining of cases? To what extent can police sources be relied upon for proper coding of homosexual homicide cases given their history of treatment toward sexual minorities? We do not know what role or to what extent, if any, internalized homophobia plays in the killing of homosexual victims by homosexual offenders.

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SCENARIOS OF FEMICIDE IN VICTORIA, AUSTRALIA

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ABSTRACT

Although females make up one-third of all murder victims in Australia, little is known about the ways in which they are killed, by whom and why, except that many of them are killed by intimate partners. It is proposed that in order to be theoretically relevant, the study of femicide (the killing of females) should take into account the context in which the homicide occurs. It is argued that the killing of females because they are female should be central to any definition of femicide. An initial typology is proposed, based on an examination of many femicide cases in Victoria, Australia, since 1995, classifying femicide cases broadly into intimate femicide, sexual homicides, and cases where the sex of the victim was irrelevant.

INTRODUCTION

Approximately one third of all homicides that occur in Australia involve a female as a victim, at an average homicide rate of 1.4 per 100,000 population each year, compared to 2.4 per 100,000 population for men (Mouzos, 1999). The effect of any homicide on the community is detrimental, yet the slaying of a woman, especially a mother who is a primary care-giver of children, tends to arouse an inordinate amount of public anger, shock and fear. The loathing reserved for those who kill women, be it their partners, children, or strangers, is probably only exceeded by that directed at those who harm children.

It should be noted, however, that the killing of women (or, in fact, of any Australian), is not a common occurrence. Many more women (and men, for that matter) in Australia are killed by motor vehicle accidents, other accidents, and suicides than are murdered by another human being (Mouzos, 1999). While homicide is a significant and important social problem, care should be taken to avoid "scare mongering" or claiming that we are experiencing an epidemic of murder. The reality is that homicide in Australia has changed little in character or quantity throughout the 20th century (Mouzos, 2000).

The purpose of the current paper is look at a theoretically relevant typology of femicide, based on a study of women killed in Victoria, Australia. To a large extent, the circumstances in which woman are killed is known: most females are killed at the hands of their husbands or intimate partners. Yet the story is always more complicated than this might suggest, relationships are always more ambiguous than simple statistical categories lead us to believe, and the circumstances of no murder can ever been taken for granted, or can hope to be understood merely by looking at rows of numbers. The current study aims to take a more thorough and comprehensive look at homicides of females by examining a more detailed data-source containing a considerable amount of information about each homicide.

DEFINING FEMICIDE

The term femicide is defined literally as the killing of a female, as fraticide is the killing of a sibling, and infanticide the killing of an infant, and is used as such by authors such as Easteal (1993). Yet while technically accurate, such a definition is not necessarily theoretically useful. It is arguably less useful to refer to the incidental killing of a female randomly by a mass murderer, who kills many men and women in a killing rampage, as femicide than it is to refer to the killing of a woman by her abusive husband by the same term. In the latter case, the fact that the victim was female was a significant determinant in her killing, whereas in the former case, the sex of the offender was probably not relevant to the killer.[1]

A more mundane example of a homicide where the sex of the victim is incidental is a robbery, in which the violence escalates and a shop attendant ends up dead. Even in a case such as this, it is certainly possible that violence was less likely to escalate, or that the robbery was less likely to occur altogether, if a male shop attendant looked like less of an easy target than a woman. Such speculation is, however, of little use, and as in most cases like this it can never been known what the effect of the sex of the victim was, it will by default be assumed to be irrelevant.

While there are cases in which the fact that the victim was a woman is irrelevant, there are many more where it is central to the homicide. A woman who has been sexually abused from a young age by her father finally escapes the abuse in her late teens and leaves home, only to be hunted down and shot and killed in her car as she pulls up to an intersection by her father who then turns the gun upon himself. A female prostitute is killed by a young man who believes that a prostitute's life is worthless, and who reasons that spending the rest of his life in jail is a viable alternative to his current existence. A man obsessed with the idea that his wife is having an affair regularly chains her to the bed and beats her, eventually beating her to death and cutting her throat in front of their two young children. These are just three examples of recent Victorian homicides in which the sex of the victim was integrally related to the reason for her death. Some of the motives for these murders, while tragic, another person may understand, if not relate to. Sexual jealousy is a common enough emotion, and while few people would kill because of it, it is not outside our understanding that some might. Other murders are so bizarre, such as sexual gratification focusing on torture and murder, that one finds themselves invoking concepts such as evil to try and make sense of them (see, for example, Riedel, 1998).

It should be noted that it is not intended to imply that it is the fault of the female victim that she is killed, or that the victim must have contributed in any way to her own death (although it does not exclude such a possibility). Cases in which there was a female victim and clear victim precipitation, were, however, very rare in the Victorian sample.

Radford (1992, p. 3) defines femicide as being the "misogynous killing of women by men." This definition is somewhat limited for our present needs. Women do kill women for

[1]Radford (1992) notes that at least one mass murderer, Marc Lépine, who killed 14 women at the University of Montreal in 1989, specifically targeted women, however, such behavior is not typical of a mass murderer.

similar reasons as men kill women, albeit considerably less frequently.[2] A sexual relationship between two women can also lead to violence, abuse and murder, as can a woman kill another woman who is a sexual rival. Not all killings of women by women will fall under our definition of femicide, but it would be remiss of us to ignore those that do. Likewise, it is not believed that misogyny is essential to femicide, though it is undoubtedly present in at least some of these homicides. In some cases, especially in some murder-suicides, the man who kills a woman believes that he loves her, and that he is doing the best thing for her.

At the other end of the femicide continuum, Mouzos (1999) considered only women over the age of 15 in her study.[3] Such a restriction again excludes interesting cases and includes irrelevant ones. A young girl who is sexually abused by her stepfather while her mother is at bingo, and then killed, prior to the man then killing himself, would fall outside the demographic rage used by Mouzos, but it is nevertheless a case worthy of consideration. Such a definition is useful for broad demographic studies, where little detail is known about each case, yet becomes frustratingly inadequate when the cases are examined in detail.

As has been alluded to, the desired definition of femicide is one which includes homicides in which the fact that the victim is a female is integral to the act of homicide. This is admittedly somewhat subjective and unwieldy, and there are certainly cases in which there is a degree of ambiguity. The killing of a female intimate partner, which is referred to as intimate femicide by Ellis and DeKeseredy (1997), would certainly fall into this category. Killings associated with sexual predation, sexual assault, stalking, and obsession could also probably safely be categorized as femicide, as would the much rarer serial homicides in which the victims are female. Most other cases will have to be judged on their own merits, many of which will certainly lead to disagreement. Unfortunately, the reality of the study of homicide is that one will never know all of the facts--many cases will inevitably result in a "best guess" based on the limited information available.

The Categorization of Homicide

There have been many attempts to understand and categorize homicides, ranging from the simplistic to the theoretically sophisticated. Flewelling and Williams (1999) argue that disaggreation of homicide data is necessary in order to understand homicide, but that there is little agreement on the best strategy for categorization. Other authors agree that, because homicides are different, implications for prevention and intervention differ for different sorts of homicide (Block & Christakos, 1995). This categorization can serve two purposes, either to better understand the causes and antecedents of homicide, or to assist in the apprehension of the offender. The latter form, an example of which is the organized-disorganized dichotomy which is used by some criminal profilers to assist in identifying serial murderers (Ressler, Burgess, & Douglas, 1988), will not be considered in the current paper.

[2]Mouzos (1999) states that 6% of female victims killed in Australia between 1989 and 1998 were killed by female offenders.

[3]Mouzos (1999) validly argues that the murder of children is substantially different from the murder of adults, and so does not include them in her study.

Homicide researchers use several approaches to categorize homicides, the most basic of which is statistical analysis. Large data sets, usually provided by government bodies, are analyzed for demographic or situational patterns, which are thought to tell us how and why homicides happen. An example of such research includes the National Homicide Monitoring Program in Australia (Mouzos, 1999), and Goetting's (1995) study of homicides in Detroit.

The most commonly used data set in homicide studies is the American Federal Bureau of Investigation's (FBI) Uniform Crime Reports (UCR), and their subset, the Supplementary Homicide Reports (SHR). These are perhaps the most prevalent data used in homicide studies because the data are relatively readily accessible, and easily managed with modern statistical software packages. These studies generally present statistics on factors such as the relationship between the victim and offenders, socio-economic variables, weapons used, whether the homicide was associated with another crime, and age and marital status of the victim and offender.

Another approach to homicide analysis is to take a small number of cases and conduct case studies, describing in detail the particular aspects of interest of each case. These studies tend to have much smaller numbers of homicides included, but offer considerably more detail for the cases that they do examine (Flewelling & Williams, 1999). For example, Heide (1999), in her study on juvenile killers, examined seven individual young killers in detail. While such studies generally provide a great deal of information about the individual cases, they tend to examine cases that are interesting for some reason, rather than representative of the population. While a serial killing might make for a fascinating case-study, with pages of detail (see, for example, Egger, 1998), such a case is not representative of most homicides.

When the aim of a study is to examine in detail characteristics of a highly specialized sample, especially when these differences are hard to detect or explain quantitatively, a case study design is the preferred approach. However, when looking at large numbers of subjects, or attempting to extrapolate characteristics from a sample to an entire population, case studies are less appropriate. Large statistical studies are often quickly able to identify general patterns, but rarely contain enough detail to explain observed effects. The quality and accuracy of the database used in these studies also directly affects the utility of their conclusions.

The approach taken by the present study fits well into neither of the above categories, rather it builds on the work of Polk and Ranson (1991) and Polk (1994), using a combination of both qualitative and quantitative data, covering all homicides in a given time period.

Problems with Traditional Approaches to Categorization

Each approach to homicide analysis comes with its own problems and concerns, but perhaps the problems of the statistical homicide studies are the most apparent. It is acknowledged that many people, particularly decision makers, feel most comfortable looking at a simple representation of the data, such as a pie chart of the relationship between victim and offender, for example, or a line graph of the time of day in which most offences occurred. Yet simplifying a complex subject such as homicide to such an extent does little to actually help us to understand what is really happening.

As mentioned previously, the most common data set that is used in U.S. homicide studies is the UCR and the SHR, but these data sets are not without their critics. Browne and Williams (1993) state that reporting agencies (of which there are about 17,000) sometimes fail to submit monthly SHR forms (which are, by definition, supplementary to the standard UCR forms), resulting in gaps in the data. They also mention that victim/offender relationship data is often missing. Other authors have commented that errors are often found in the SHR data when they are manually cross-checked against police files, and that the entries can contain duplications and logical impossibilities, such as a father who is younger than his son (Wilson & Daly, 1992). A further issue is that the SHR does not contain any narrative information, or context, about the homicide event (Wilbanks, 1984).

The most common example of categorization of homicides is that of the relationship between offender and victim (Flewelling & Williams, 1999). The most common representation of this relationship owes much to the work of Wolfgang (1958), which has led to the common categorization of relationship between victim and offender into categories such as "family," "friend/acquaintance," and "strangers" (Polk & Ranson, 1991). Zahn and McCall (1999), however, report that these terms are used inconsistently across studies. For example, Wolfgang (1958) used 11 categories of victim offender relationship, which have been used as inspiration, but rarely exactly replicated, in dozens of other studies. While certainly Wolfgang's categorization was never going to be the last word, deviations in the categories by other researchers render these various studies incomparable on this dimension.

With respect to the validity of the categories, it may also be asked, for example, at what point someone move from being a "stranger" to an "acquaintance" to a "friend." Human relationships are often too complex, especially in the twisted vignette of a homicide, to be represented easily by one category. This problem has been discussed extensively in the literature (see, for example, Polk, 1994; Silverman & Kennedy, 1993). An example from the current study is a man who killed the mother of his ex-common-law wife. One could argue that the offender and his victim were either related or unrelated (although they were certainly not sexually intimate, strangers, or friends), yet none of these categories help us understand why he killed her--that he saw his in-laws as the source of all of his marital problems and the reason his partner left him.

Probably more significant, but less apparent, is what such studies tell us about homicide. For example, we might find out that most (47%) homicides of sexual intimate partners occur between the hours of 6 p.m. and midnight (Easteal, 1993). A cursory reading of such results, might suggest someone to recommend that women make a point not to be out during such times, as it is not safe. Yet we also know that a woman is most at danger of being killed by a member of her own family in her own home (Mouzos, 1999). Knowing this, does this mean we must suggest that, during these most dangerous hours, women be away from home? Such a nonsensical recommendation ignores the complexity of events and situations which can result in a homicide. These studies really tell us little of theoretical interest, and do little towards helping us understand why homicide occurs and what we might do to prevent it. This is not to say that all such studies are worthless, merely that statistical analyses often hide some of the complexity that is necessary to completely understand homicide.

As has been alluded to above, case studies also have their own problems associated with them, mainly due to the fact that they often have a small number of cases, which may not be representative of the overall population. As such, it is often difficult to generalize from these studies, and while they may assist in the understanding of some forms of homicide, often they lead to little in the way of practical recommendations for the prevention of homicide. Such studies also choose the "interesting" cases, giving a somewhat biased view of homicide. As such, they may have issues of external validity, not being able to generalize to other populations, or even the population from which they were drawn. A further issue with case studies is that they tend to be drawn from special populations, such as clinical samples (only people who have been referred for treatment or evaluation at a certain facility). Differences between the clinical sample and the entire population will be ignored in any such study.

It is also of relevance to question where these case studies get their information. Police departments rarely release precise details of unsolved homicides, and often what they do release to the media is intentionally inaccurate, so as to encourage the offender to talk about what actually happened to associates, increasing the chances that someone will hear and report something. Case studies that rely on media reports or true crime novels should certainly be viewed with a great deal of suspicion. Accounts designed to sell newspapers or books cannot be relied upon to have accuracy as one of their highest priorities.

Sex and Homicide

The universally accepted finding in every major homicide study has been that men and women are killed at different rates, with many more men than women being victims of homicide. Explanations of these differences have been proposed with varying levels of sophistication since Wolfgang (1958, p. 226) observed that "[h]omicide may be an index to the relative amounts of such interpersonal relations in the broader culture that surrounds the players in the homicide drama." It should be readily apparent that any theoretical consideration of homicide should have some consideration of sex issues.

It has been argued that it is a fallacy to assume that women's lives are the same as men's lives, or that those differences will have no significance to a theory of homicide, whereas in fact the evidence suggests that the nature of the involvement of women in homicide is often quite different than for men (Browne & Williams, 1993). Frye and Wilt (2001) contend that accumulating experimental evidence that there are fundamental differences between homicides committed against women by intimate partners and other homicides necessitates reevaluation of criminological theories of homicide with consideration to the sex of the victims and the relationships of the participants.

Data Sources Used in the Current Study

The primary data source used in the study that inspired the current paper is the police brief prepared for the coroner. Under the Victorian Coroner's Act, 1985, the Coroner has a responsibility to investigate every death occurring or caused in the State of Victoria which appears to be unnatural, unexpected, violent, or to have resulted from accident or injury (Fox,

1997). The brief, which can be several hundred pages long, contains witness statements, transcripts of interviews of suspects, the autopsy and toxicology reports, and any other information that the investigating police members think is pertinent to the coroner's investigation of the death. Due to the amount of detail usually contained in the brief, most of the problems the with lack of context experienced by statistical studies of homicide are avoided, and once a finding has been delivered by the coroner, all of the information used in the case become publicly accessible.

There are, however, two problems with using the coroner's brief as a primary data-source. The first is that sifting through the data in order to find the relevant information can be very time consuming. Much of the demographic data about the victim is contained on the database of the coronial system, but in order to get any demographic data about the offender, it is necessary to manually read through most of the brief. The second problem is that a coroner usually only holds an inquest, or makes a finding without holding an inquest, into a homicide once the offender is known, charged with the crime, and convicted. This avoids duplication of the investigation by the coronial system and the criminal courts. Where an offender is not found by the police, it may be many years before the coroner holds his or her own inquest into the death. Thus information for unsolved crimes is often difficult to obtain.

A TENTATIVE TYPOLOGY

It is beyond the scope of the current paper to propose the definitive way in which homicide can be meaningfully categorized, however, a starting point may be suggested. It is argued above that women tend to be killed for different reasons to men. While some of these reasons may be picked up by disaggreation by relationship between victim and offender, many cases will certainly be categorized in a less than meaningful way. When we look in detail at the cases, however, certain patterns begin to emerge.

The most obvious cluster of femicide is intimate femicide, where women are killed in the context of a domestic relationship by their cohabiting (usually male) partner. These homicides tend to occur after many years of domestic violence and emotional abuse, and the killer usually shows signs of jealousy and controlling behavior. The plethora of literature discussing these common femicides will not be repeated here, except to note that this particular type of femicide has spawned a number of plausible theoretical explanations. Ranging from feminist theory (for example, Radford, 1992) to evolutionary psychology (the most notable proponents being Daly & Wilson, 1988), but tending to focus on male sexual proprietariness, there seems to be little real disagreement regarding the causes of these types of killing.

Many statistical studies of homicide, following Wolfgang (1958), list "family" as a category; however, as Daly and Wilson (1988) note, many unfortunately do not divide that further into spouse, children and parents. When "intimate" is listed as a category, it tends to contain a large proportion of the femicides (Mouzos, 1999, for example found 57.6% of women were killed by an intimate partner). However, even then some cases which are certainly intimate femicide (or, at least, look very much like what the theories discussed above illustrate) may be missed. It is not uncommon, for example, for the mother or a friend of the abused woman to be killed by her partner when he is attempting to kill her. In one Victorian case, an abusive husband

shot at his partner and her friend, wounding his partner and killing her friend. While this would not tend to be classified as an intimate femicide, classifying it as an "acquaintance" homicide does nothing to help us understand why it happened, and if anything, muddies our understanding of both "intimate" and "acquaintance" homicides even further.

It should be noted, however, that a close examination of the cases turns up a small number of intimate femicides in which there is no evidence of abuse or controlling behavior. While it may be impossible to confidently say that these really are different to intimate femicides which arise out of patriarchy and male sexual proprietariness, many seem to look much more like what Wolfgang (1958, p. 191) famously called an "altercation of relatively trivial origin." These are cases where an argument between a couple in what seems to be a non-abusive relationship escalates into a homicide. It may be that in these cases the fact that the victim was a female is less significant, and that they may require a different theoretical understanding than other intimate femicides.

Related theoretically to intimate femicide is murder-suicide, in which a man kills his intimate partner and then takes his own life. Barnes (2000), in a study of 188 murder-suicides in Australia, found that the situations of intimate murder-suicide closely mirrored those of intimate femicides. Issues of male sexual proprietariness were very apparent in these cases, tending to suggest that intimate murder-suicide should be grouped in with intimate femicide. However, the fact that in some cases the man will kill himself, and in others will not, is surely of some theoretical interest. As such, it is suggested that either treating murder-suicide as completely separate, or simply lumping it in with other types of intimate suicide, will ultimately be counterproductive.

Complicating matters is the observation that not all murder-suicides are the same, and at least some of them appear to result from more altruistic motives. Especially amongst older people, a murder-suicide may be intended to be a form of joint euthanasia (see, for example, Polk, 1994). Depending on the laws in the jurisdiction, and the operationalization of the definitions of homicide in the particular study, these may or may not be included in any given study of homicide. If they are included, however, it is argued that a distinction between these and other forms of murder-suicide should be made in any theoretical approach.

In contrast to intimate femicides, sexual homicides have received very little theoretical attention, yet are another small, but important, group of femicides. Writing on sexual homicide is generally confined to studies on serial killers, who commit a number of sexual homicides, but is often based on anecdotal data and is largely atheoretical. Attempts to put serial killers into a theoretical framework have included the works of Hickey (1997) and Ressler et al. (1988), but little of this is applicable to those who commit only one sexual homicide. As other theories of homicide have trouble explaining these cases (or merely write them off as anomalies), this is one area of homicide that could benefit greatly from theoretical attention.

In regards to the Victorian cases, these sexual homicides seem to fall into two categories. The first is the classic sexual homicide which appears to be for sexual gratification. The victim may be a relative stranger, such as a prostitute, an acquaintance, or even a family member, and the victim may be sexually assaulted before or after she is killed. The second type is the victim

who is killed by a man who has sexually assaulted her so that he can avoid responsibility for the crime. Victims in these cases are often children, and the offender may be a stepparent or an acquaintance. Whether the distinction between these two types based on the small number of Victorian cases will hold up in a larger data set is yet to be established.

For a small number of femicides, the fact that the victim is a female does not seem to be of any real theoretical significance. For example, females might be killed inadvertently in an armed robbery, or they may be involved in criminal activity and killed as a result of disputes arising out of that. Although one could argue that females in certain high-risk settings are more or less likely to be killed, it is probably more fruitful to consider these cases along with males killed in the same setting, rather than make a token differentiation on the basis of sex. The fact that these women are in these settings (such as criminal enterprise) is probably of more interest than the fact that people in those settings tend to get killed, and that is probably not a core concern for most homicide theorists.

CONCLUSION

The current paper has attempted to suggest an approach to disaggregating femicides into logical and consistent categories. It is not claimed that this is the best, or only way to approach this issue, and does not attempt to provide a well-grounded theory. It is, rather, an exploration of the initial thinking of the author after having looked through the Victorian data set.

It is argued that intimate femicides, murder-suicides, and sexual homicides tend to form distinctive groups of cases, and that for at least the former two groups, there already exists some theoretical justification for treating them separately from other forms of femicide. By pretending that all femicides (or all homicides, for that matter) are the same, we limit the possible insights that our analyses may reveal. Until we manage to derive a Grand Theory of Homicide which is universally accepted, a theoretically aware disaggreation of homicide data would seem essential to any analysis.

Statistical disaggreation, by its very nature, tends to result in post-hoc theorizing about the underpinnings of any categorization that results. Such analysis is also absolutely dependent on the variables which are collected for each case, and these variables are often dependent upon what is convenient for policing agencies to collect. As such, the conclusions that can be reached may be somewhat limited, but, furthermore, may be completely outside the control of the interested criminologist.

It is not the objective here to argue that quantitative analysis of homicide data is not a valid approach to studying homicide. Indeed, quantitative analysis of national data sets is often the only way to detect certain broad trends. What is argued, however, is that statistical analysis without an understanding of why homicide happens may be misleading or worthless. Further, it is argued that some statistical analysis may not be able to provide that understanding, in of itself.

A number of studies, such as the Australian National Homicide Monitoring Program and the Chicago homicide data set, have included narratives of the incident in their data collection. Wolfgang (1958) regularly used descriptions of incidents to illustrate many of his analyses, as

have Polk (1994), Daly and Wilson (1988), and Silverman and Kennedy (1993). Wilbanks (1984) provides thumbnail sketches of all 569 cases of homicide in Dade County, Florida, in 1980, to "serve as illustrations of points made in the text" (p. xv). As such, the importance of understanding what actually happens in homicide is certainly not a new revelation, but it is still an important point to make. It is only through this understanding of the context of homicide that any analysis, either quantitative or qualitative, can be meaningful.

Homicide is a complex and multifaceted phenomenon, and no two homicides are exactly alike. Due mainly to what is not known about homicide events, classifying homicides will never be without its problems. It is hoped that such a conceptual grouping might at least approximate the true state of the world, and should help us understand homicide at a more manageable level. It is further emphasized that such an organization of the data might help us recognise patterns that are small enough to fall below statistical significance, but which constitute a real subgroup of homicide events.

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CHAPTER SEVEN

FEMALE AND INTIMATE PARTNER HOMICIDE

MURDER IN A LOVER'S TRIANGLE

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ABSTRACT

The killing of women by their husbands poses an enigma for social scientists. Why do relationships presumably characterized by love sometimes result in death? A variety of hypotheses have been offered to explain this puzzling pattern. Among the most prominent are (a) sheer proximity and opportunity, (b) epiphenomenal byproducts of a male psychology designed for coercive control of women, and (c) evolved mate-killing mechanisms. One way to test these hypotheses is to examine the contexts in which wife-killings occur. We secured access to a homicide database that included 345 spouse killings perpetrated by husbands in the context of a "lover's triangle,"[1] a context that signifies sexual infidelity. Results indicated that a woman's age, and hence reproductive status, predicts vulnerability to being killed in the context of a lover's triangle. Discussion focuses on alternative explanations for this finding, as well as findings not explained by existing theories of homicide.

MURDER IN A LOVER'S TRIANGLE

Most cross-sex killings involve the killing of a spouse (Daly & Wilson, 1999). With occasional exceptions, men far outnumber women as the killers, and women outnumber men as the victims (Daly & Wilson, 1988; Dobash & Dobash, 1979). These killings present a puzzle for social scientists: Why would the relationship most frequently characterized by love result in the highest risk of death? Several hypotheses have been advanced to account for these findings. One hypothesis invokes sheer proximity (Daly & Wilson, 1988). According to this hypothesis, the risk of getting killed is a function of the frequency of interaction. Because spouses interact with each other frequently, the risk of spousal homicide is commensurately high.

A second hypothesis, which may be called the "killing-as-byproduct hypothesis," invokes an evolved male psychology of sexual proprietariness that involves the use of violence as a means of coercive control of female sexuality:

[1]The code book of the Federal Bureau of Investigation (FBI), used for collecting the data for its Supplementary Homicide Reports uses the term "lover's triangle," although in publications it refers to the incidents as involving a "romantic triangle" (e.g., FBI, 1992, p. 13), which, along with "love triangle," are more commonly used terms to describe such situations.

In attempting to exert proprietary rights over the sexuality and reproduction of women, men walk a tightrope. The man who actually kills his wife has usually overstepped the bounds of utility, whether utility is assessed in fitness or in more proximate currencies. Killing provokes retribution by the criminal justice system or the victim's relatives; at the least, murdered wives are costly to replace. But killing is just the tip of the iceberg: For every murdered wife, hundreds are beaten, coerced, and intimidated. There is brinksmanship and risk of disaster in any such contest, and homicides by spouses of either sex may be considered slips in this dangerous game." (Daly & Wilson, 1988, p. 205)[2]

In short, according to the byproduct hypothesis, humans do not possess evolved psychological mechanisms designed to kill their mates. Rather, "the fatal outcome in these homicides [spousal killings] is hypothesized to be *an epiphenomenal product of psychological processes that were selected for their nonlethal outcomes* [italics added]" (Wilson, Daly, & Daniele, 1995, p. 287).

According to the byproduct hypothesis, an evolved psychology of male sexual jealousy lies at the root of coercive control (Daly & Wilson, 1988, 1996, 1999; Wilson & Daly, 1992; see also Buss, 2000). Men use violence to deter their wives from adultery or defection, and sometimes the violence inadvertently results in death. A woman's real or suspected sexual infidelity, according to this hypothesis, would be a key context placing a woman at risk for violence and hence death. The context of a "lover's triangle"--in which a man suspects or discovers his wife's sexual infidelity--would constitute a key risk factor.

A third hypothesis, derived from evolved homicide theory (Buss & Duntley, 1998), suggests that many spousal homicides result from evolved male mechanisms specifically "designed" by natural selection to motivate killing under certain circumstances--notably, a wife's real sexual infidelity or permanent defection from the relationship. According to this theory, over human evolutionary history there have been some contexts in which the benefits of killing a defecting spouse outweighed the costs. A wife's sexual infidelity, for example, places a husband at risk of losing access to his wife's reproductive capacity, can result in catastrophic reputational damage, and can result in a man devoting two or more decades of his life and resources to the children of an intrasexual rival. Similarly, an outright defection by the wife could have resulted in a double fitness cost to the original husband--his loss is an intrasexual rival's gain.

According to evolved homicide theory, many wife-killings are intentional and "designed" outputs of evolved male psychology, not slip-ups or epiphenomena (Buss & Duntley, 1998). *Under certain very delimited circumstances*, the benefits of killing would have outweighed the costs to the killer. According to evolved homicide theory, mate killing would be far too costly to cuckolded husbands under most circumstances (Buss & Duntley, 2002). The close presence of kin of the wife, for example, would increase the risk to the would-be killer of retaliation--a costs that itself requires explanation. Nonetheless, the fitness benefits of killing must have exceeded

[2]For overviews of evolutionary psychology, in general, and of evolutionary psychological applications to homicide, in particular, see Daly & Wilson (1997, 1999).

the costs in some circumstances in order for a psychology of killing to have evolved. These fitness benefits, according to this theory, included depriving an intrasexual rival of access to a reproductively valuable resource, killing the embryonic children of the rival, deterring polygynous co-wives from defecting, and cultivating a social reputation that deterred other rivals from encroaching (Buss & Duntley, 2002). The theory that men have evolved specialized mechanisms to kill mates under certain circumstances, of course, does not mean that there is some sort of "killer instinct" that is manifested invariantly across contexts. Precisely the opposite. The evolved psychology of killing is proposed to be highly sensitive to perceived costs and benefits, and under most circumstances, the costs of killing are likely to be too high.

According to this theory, a lover's triangle is precisely the risk factor highly linked with wife-killing, because it signals the husband's loss (either temporary or permanent) and a rival's gain--benefits to rivals that would be eliminated by spousal killing. Since selection is the result of the relative reproductive fitness of competing designs (Dawkins, 1982), damaging an intrasexual rival's fitness effectively enhances one's own. Furthermore, the younger the age, and hence the higher the reproductive value (expected future reproduction, Fisher, 1930/1958) of the wife, the more costly is the loss to the husband and the more beneficial to the encroaching rival. Thus, younger women suspected by their husbands of involvement in a lover's triangle are predicted to be more vulnerable to being killed than are older women.

Spouses are similar in age, so that reproductive-age women tend to be married to relatively younger men (Buss, 1989, 1994). Younger men, in turn, commit the majority of homicides (Daly & Wilson, 1990; Messerschmidt, 1993; Polk, 1994; Wilson & Daly, 1985). Perhaps reproductive-age women, relative to post-reproductive-age women, are more likely to be killed for a suspected infidelity because they are married to younger, more violent men. We address this potential confound in the present research by controlling for husband's age. We secured access to a large database of wife-killings or uxoricides that coded the woman's age, her husband's age, and the circumstance of the murder. This database allowed us to test the hypothesis that the probability of being murdered by a sexually jealous husband in the context of a "lover's triangle" increases with the decreasing age of the wife, even after controlling for husband's age.

METHOD

Database

The United States Federal Bureau of Investigation (FBI) requests information from each state on criminal homicides. Supplementary Homicide Reports (SHRs) include incident-level data on every reported homicide, including the relationship of the victim to the offender, the ages of the victim and offender, and the circumstance of the homicide. The database analyzed for the present project includes SHRs for the years 1976-1994 (Fox, 1996), providing information on 429,729 homicides.

Procedures

Of the over 400,000 cases of homicide included in the database, 13,670 were cases in which a husband killed the woman to whom he was legally married. All analyses were restricted to these cases. The average age of uxoricide victims was 39.41 years (SD = 15.40 years), ranging from 15 to 95 years. The average age of uxoricide perpetrators was 43.29 years (SD = 15.67 years), ranging from 16 to 98 years. Husband's age and wife's age were strongly positively correlated, r (13,668) = .89, $p < .001$.

TABLE 1. Frequency and Percent of Uxoricides by Circumstance and Information Available

Circumstance of Uxoricide	Frequency	Percent
Some information available		
Lover's triangle	345	4
Brawl due to alcohol	250	2
Argument over money	158	1
Arson	32	< 1
Narcotics and drug laws	15	< 1
Brawl due to drugs	15	< 1
Other sex offense	10	< 1
Robbery	5	< 1
Rape	4	< 1
Burglary	4	< 1
Gambling	2	< 1
Gangland killing	2	< 1
Abortion	1	< 1
Child killed by babysitter	1	< 1
Little information available		
Other arguments	7774	57
Other	3872	28
Unknown	1001	7
Other felony	123	1
Suspected felony	56	< 1
Total	13670	100

NOTE: Actual total percent exceeds 100 due to rounding.

We created a variable coding the circumstance of the uxoricide. The FBI SHR database includes 19 different codes for the circumstance of the murder. Table 1 shows the frequency and percentage of uxoricides attributed to each of the circumstance codes. One of these codes is "lover's triangle." This circumstance code includes 345 wife-killings, about 41% of the wife-killings for which some information is available about the circumstance of the murder. The present analyses include only cases in which a man killed the woman to whom he was legally married. Under these conditions, a "lover's triangle" refers to cases in which the man suspected or discovered wifely infidelity. Although a few of these cases might be cases in which the murdered woman suspected or discovered her husband's infidelity, most are cases in which the murdered woman was killed by a husband who suspected or discovered her infidelity (see Buss, 2000; Daly & Wilson, 1988). The new circumstance variable was coded "1" for uxoricides attributed to a lover's triangle, and "0" for all other circumstances.

RESULTS

We conducted a hierarchical logistic regression analysis in which the dichotomous circumstance variable (lover's triangle vs. other than lover's triangle) was the dependent variable. In the first step, we entered wife's age and husband's age. Prior to entry into the analysis, we centered wife's age and husband's age (i.e., subtracted their respective means from the raw ages) to reduce multicollinearity with the product variables entered on subsequent steps to test for interactions (see below). Table 2 displays the results of the full hierarchical logistic regression analysis.

The results of the first step show that wife's age uniquely and negatively predicted the probability of uxoricide in a lover's triangle. Younger wives were more likely to be killed in a lover's triangle, after controlling for husband's age. Husband's age, in contrast, did not uniquely predict the probability of uxoricide in a lover's triangle. Figure 1 displays the relationship between wife's age and the probability of uxoricide in the context of a lover's triangle.

The results of the second step show that the quadratic function of wife's age uniquely predicted the probability of uxoricide in a lover's triangle. This quadratic function is such that, as women age, they become precipitously less likely to be killed by their husbands in the context of a lover's triangle. Neither the quadratic function of husband's age nor the interaction of wife's age with husband's age uniquely predicted the probability of uxoricide in a lover's triangle. Figure 2 displays the relationship between the quadratic function of wife's age and the probability of uxoricide in the context of a lover's triangle.

The results of the third step show that the cubic function of husband's age uniquely predicted the probability of uxoricide in a lover's triangle. This cubic function is such that the probability of committing uxoricide in the context of a lover's triangle initially decreases precipitously with husband's age, and then levels off for middle aged and older husbands. None of the remaining terms entered in this step uniquely predicted the probability of uxoricide in a lover's triangle. Figure 3 displays the relationship between the cubic function of husband's age and the probability of uxoricide in the context of a lover's triangle.

TABLE 2. Results of Hierarchical Logistic Regression of Uxoricide Circumstance (Lover's Triangle Versus Other Than Lover's Triangle) on Wife's Age and Husband's Age.

Predictor	B X 1000	SE_B X 1000	Wald[a]
Step 1			
Wife's age	-35.00	8.00	19.33**
Husband's age	14.00	7.00	3.46
Step 2			
Wife's age X Husband's age	> 0.00, < 0.45[b]	1.00	0.01
$(\text{Wife's age})^2$	-2.00	1.00	4.94*
$(\text{Husband's age})^2$	> 0.00, < 0.45[b]	> 0.00, < 0.45[b]	0.04
Step 3			
$(\text{Wife's age})^3$	> 0.00, < 0.45[b]	> 0.00, < 0.45[b]	2.18
$(\text{Husband's age})^3$	> 0.00, < 0.45[b]	> 0.00, < 0.45[b]	4.89*
$(\text{Wife's age})^2$ X Husband's age	> 0.00, < 0.45[b]	> 0.00, < 0.45[b]	0.02
Wife's age X $(\text{Husband's age})^2$	> 0.00, < 0.45[b]	> 0.00, < 0.45[b]	1.37

[a] For each test, df = 1; the Wald statistic is calculated as $(B/SE_B)^2$, the square of the standardized regression coefficient.

[b] The actual value provided by the statistical package (SPSS 10.0 for Windows) is ".000." After multiplying this value by 1000, the resulting product must be less than approximately 0.45 (otherwise the actual value would have been reported as ".001"), but greater than 0 (otherwise the actual value would have been reported as "-.000").

NOTE: Total N = 13,670. Wife's age and husband's age were centered prior to entry into Step 1, and were centered prior to each transformation (see text). Circumstance of uxoricide was coded "1" for "Lover's triangle," and "0" for all other contexts.

Model summary for Step 1: χ^2 (2, N = 13,670) = 35.62, p < .001;

Model summary for Step 2: χ^2 (5, N = 13,670) = 63.40, p < .001; $\triangle\chi^2$ (3, N = 13,670) = 27.78, p < .001.

Model summary for Step 3: χ^2 (9, N = 13,670) = 78.20, p < .001; $\triangle\chi^2$ (4, N = 13,670) = 14.80, p < .01.

*p < .05, **p < .001

FIGURE 1. Probability of Wife Being Killed by Husband in the Context Of a Lover's Triangle, As a Linear Function of Wife's Age (Centered, See Text)

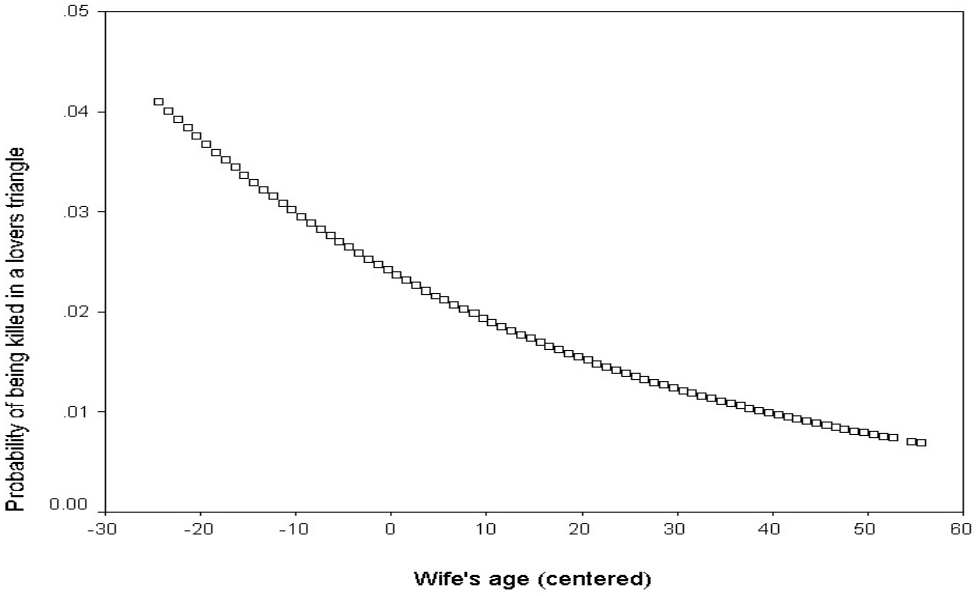


FIGURE 2. Probability of Wife Being Killed by Husband in the Context of a Lover's Triangle, as a Quadratic Function of Wife's Age (Centered, See Text). Squared Values for Wife's Age (Centered) Are Shown Just Below the X-Axis; Original Values for Wife's Age (Centered) are Shown in Parentheses Below the Corresponding Squared Values.

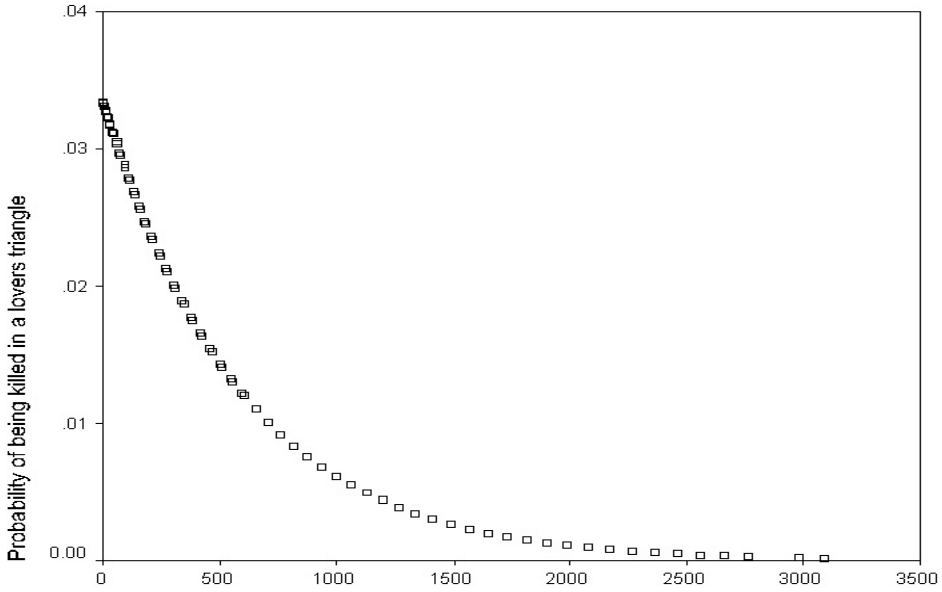
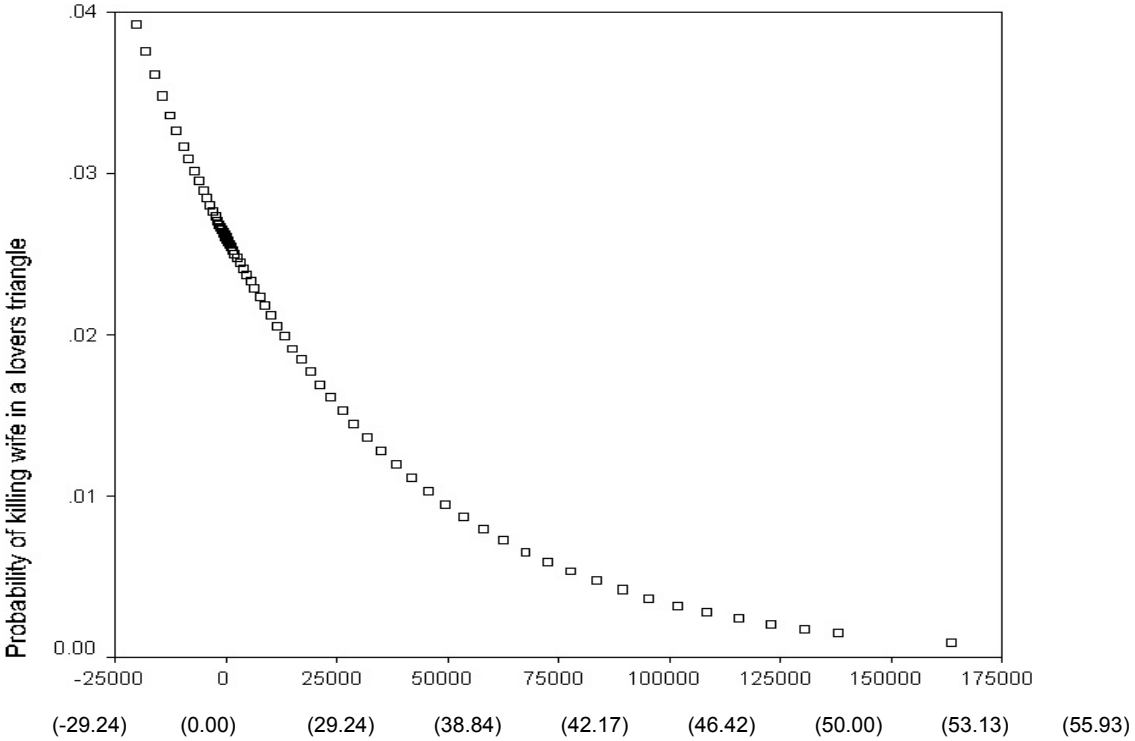


FIGURE 3. Probability of Killing Wife in the Context of a Love Triangle, as a Cubic Function of Husband's Age (Centered, See Text). Cubed Values for Husband's Age (Centered) are Shown Just Below the X-Axis; Original Values for Husband's Age (Centered) are Shown in Parentheses Below the Corresponding Cubed Values.



DISCUSSION

The key finding of this study is that the probability of a woman being murdered by a sexually jealous husband in the context of a lover's triangle increases with the decreasing age of the woman. Younger women and, therefore, women with greater reproductive value, are at greater risk for being murdered in this context. Of the three hypotheses proposed for wife homicide, the proximity hypothesis fails to explain this pattern of uxoricides, unless one proposes that younger wives share proximity with their husbands at concomitantly higher rates than do older wives.

In addition to the linear relationship between wife's age and the probability of uxoricide in the context of a lover's triangle, the current research documents a quadratic relationship, indicating that the risk of wife-killing in a lover's triangle decreases precipitously as a function of a woman's age. This quadratic relationship is consistent with the hypothesis that younger women are at greater risk for wife-killing in a lover's triangle precisely because they are of reproductive age. As a woman reaches the end of her reproductive years, the possibility that a sexually jealous husband will murder her becomes strikingly less likely with each passing year.

Finally, the current results indicate a cubic relationship between husband's age and the probability of committing uxoricide in the context of a lover's triangle. This cubic relationship reveals that young men are particularly likely to kill their wives in the context of a lover's triangle, but that this increased risk levels off as men age. This result is consistent with other work indicating that women married to young men are at greater risk for uxoricide than are women married to older men (see, e.g., Daly & Wilson, 1988; Shackelford, Buss, & Peters, 2000). A key finding of the present research, however, is that husband's age does not uniquely predict the probability that he will kill his wife in a lover's triangle, after controlling statistically for wife's age.

The present research provides the first empirical test of the hypothesis that younger women are more likely to be killed by a sexually jealous husband *in the context of a lover's triangle*. Previous empirical work--much of it inspired by an evolutionary psychological perspective (see, e.g., Daly & Wilson, 1988, 1996; Daly, Wilson, & Weghorst, 1982; Shackelford et al., 2000)--has tested related hypotheses, such as whether younger women are at greater risk for uxoricide than are older women, and whether male sexual jealousy is a more frequent cause of wife killing than other causes. This previous work indicates that younger women are at greater risk for uxoricide than are older women and that male sexual jealousy is one of the most frequent causes of wife killings, cross-culturally. The current research uniquely contributes to this literature by testing the novel hypothesis that younger women are at greater risk for uxoricide in the specific context of a lover's triangle.

Competing Theories of Mate Homicide

The current findings are compatible with both of the remaining explanations--the byproduct hypothesis (Daly & Wilson, 1988) and evolved homicide theory (Buss & Duntley, 2002). Both hypotheses predict an evolved psychology of male coercive control. Both predict male sexual jealousy as a key risk factor. Both predict that a wife's suspected or discovered infidelity, signaled by a lover's triangle, will put a wife at risk of violence and death. And both predict that suspected or actual infidelity or defection by younger wives, who are higher in reproductive value, will result in relatively more killings than equivalent infidelities or defections by older wives.

Future studies are needed to differentiate these alternative evolutionary explanations. Evolved homicide theory predicts that *some* of the circumstances that lead to non-lethal coercion will differ from those that lead to mate homicide. The existence of children of the couple known to be sired by the husband, for example, should lower the odds of the husband killing an unfaithful spouse. By killing the mother of his children, the would-be killer would be inflicting a substantial cost on his children. The reproductive benefits that would have flowed to the would-be killer in the form of depriving intrasexual rivals of access to his mate would be likely to be far outweighed by fitness costs he would suffer in the form of inflicting damage to his children. In contrast, there is nothing in the byproduct hypothesis of mate killing that would predict a differential likelihood of mate killing as a function of existing children.

A second empirical test of the competing theories could come from examining homicidal thoughts and fantasies (Buss & Duntley, 2002). Evolved homicide theory predicts that recurrent thoughts of mate killing, which serve hypothesized functions of scenario-building, cost-benefit calculation, and motivation, would be commonly evoked by a partner's infidelity or outright defection. In contrast, the byproduct hypothesis contains no premises to explain the existence of cognitively costly recurrent homicidal thoughts. Indeed, the existence, recurrence, and predictability of such homicidal thoughts would be theoretically puzzling on the pure violence-as-coercion account.

It is quite possible, of course, that the byproduct and evolved homicide theories are both correct in some form. Men might possess an evolved psychology of using violence to coerce and control their spouses, which occasionally results in an accidental spousal homicide, *and* men might possess an evolved psychology designed to kill mates under certain circumstances. Each theory might account for a fraction of mate homicides. Given the dangers to women of both possible forms of male psychology, research on these issues is urgently needed. Future tests must be conducted that directly pit the competing evolutionary hypotheses of mate killings against each other, with the above qualifications in mind.

Limitations and Qualifications

Several additional limitations, qualifications, and complexities posed by the current findings require further research. The current study, by itself, cannot distinguish between two possibilities: (a) younger women are more likely to get involved in lover's triangles than are older women, which makes them more vulnerable to homicidal violence from their husbands; or (b) a lover's triangle, if it occurs, is statistically more likely to result in a wife being killed if she is younger rather than older. According to some studies, reproductive-age wives are indeed more likely to be sexually unfaithful than are post-reproductive-age wives (Kinsey, Pomeroy, Martin, & Gebhard, 1953), suggesting that the first explanation is more likely. On the other hand, men show more intense mate guarding of younger women than older women (Buss & Shackelford, 1997), suggesting that a lover's triangle is more likely to evoke intense male sexual jealousy if the wife is young. Although future research is needed to differentiate these two causal possibilities, the available evidence suggests that both factors might operate in concert. Reproductive-age women may be both more likely to get involved in a lover's triangle and, other things being equal, a lover's triangle may be more likely to trigger homicidal violence in men if the unfaithful wife is within her more fertile years.

Another limitation pertains to the limited scope of the FBI SHR data, which do not permit ruling out an alternative interpretation for the current findings. Perhaps it is not the reproductive status of younger women that makes them more vulnerable to being killed by their husband in the context of a lover's triangle. Instead, it may be the length of the marriage that places some women at greater risk for uxoricide in a lover's triangle. Younger women are likely to have been married for a shorter duration than are older women. Perhaps conflicts about infidelity in marriages of a shorter duration are more intense, or more frequent, than are conflicts about infidelity in marriages of a longer duration, and this may account for why younger women are more likely to be killed in the context of a lover's triangle. This interpretation is incompatible with previous empirical work that shows that men married to younger women are more

controlling of their wife's sexuality and more vigilant about her possible infidelity than are men married to older women, even after statistically controlling for the length of the marriage (Buss & Shackelford, 1997). Without information on the length of the marriage, we cannot, however, decisively rule out the possibility that the key risk factor is the length of the marriage, and not the wife's age, that places younger women at greater risk for being killed in the context of lover's triangles.

Although reproductive-age women are more vulnerable to being killed by their husbands, a substantial number of women murdered by their husbands are post-reproductive age. Post-reproductive-age women comprise about 25% of the 13,670 uxoricides in the FBI SHR database. These results suggest that uxoricide is unlikely to be exclusively attributable to male mechanisms designed to generate behaviors that reduce the risk of cuckoldry. Are some older women killed for money that is then used by men to secure a replacement mate? Are some of these deaths attributable to euthanasia or "mercy-killings," where older wives with incurable diseases are killed either by mutual consent or by a man who cannot bear to see his wife of many years suffer any longer (Cohen, Llorente, & Eisdorfer, 1998; Daly & Wilson, 1988)? The FBI SHR database does not provide the data necessary for testing these and other alternative explanations for uxoricides of post-reproductive-age women.

Spousal homicide constitutes an important and recurrent problem in modern America as well as worldwide (Daly & Wilson, 1988, 1992, 1999; Wilson & Daly, 1993). Using one of the largest homicide databases in the world, this study contributes to a growing body of work indicating that reproductive-age women (relative to post-reproductive-age women) married to men who suspect wifely infidelity may be at special risk of uxoricide. Future research could profitably pit competing theories of spousal homicide against each other in critical empirical tests to develop a more comprehensive theory of spousal homicide and a more precise understanding of the circumstances in which this form of conspecific killing occurs.

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ACTUAL AND ATTEMPTED FEMICIDE RISK: RECONCILING MODELS[1]

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ABSTRACT

We conducted a multi-city case control study to identify risk factors for femicide in abusive relationships. Early proposal reviews questioned the reliability and validity of risk information collected from proxy informants. Therefore, we added an attempted femicide sample to our study. In data analysis, we compared abused controls to each of the two study case groups (actual femicides and attempted femicides) and performed two separate hierarchical logistic regression models. We found the samples more similar than different in both the bivariate and multivariate analyses, with primarily the same risk factors. Both data sets have advantages and disadvantages in determining risk factors for intimate partner femicide.

ACTUAL AND ATTEMPTED FEMICIDE RISK: RECONCILING MODELS

Intimate partner (IP) homicide accounts for at least 30-40% of homicides of women, or femicide (Browne, Williams & Dutton, 1999). When ex-boyfriends as well as husbands, boyfriends, and ex-husbands are counted as perpetrators, the percentage of IP femicides increases to as much as 50-60% (Pitacki, 1997). The most important risk factor for IP femicide (IPF) is prior domestic violence by the homicidal perpetrator (Bailey et al., 1997; Browne et al., 1998; Pitacki, 1997). The 12-city femicide study was undertaken to determine the risk factors for IPF over and above intimate partner violence (IPV) (Campbell et al., in press). We were

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interested in identifying these risk factors in order to determine strategies to prevent IPF with battered women and to conduct more accurate lethality assessment with these women. We were particularly concerned about appropriate lethality assessment since 51.4% of the femicide victims were described as not accurately determining their risk before they were killed. IPV has been defined by the Centers for Disease Control and Prevention (CDC) as physical and/or sexual violence (use of physical force) or threat of such violence, or psychological/emotional abuse and/or coercive tactics when there has been prior physical and/or sexual violence, between persons who are spouses or non-marital partners (dating, boyfriend-girlfriend) or former spouses or non-marital partners (Saltzman, Fanslow, McMahon, & Shelley, 1999). We used this definition in our operationalization of IPV.

The study design was case-control with women victimized by IPF with a history of IPV (according to proxy informants) as cases (N = 220) and women randomly selected from the same cities as controls (N = 343). The case information was abstracted from police or medical examiner homicide files as well as derived from semi-structured interviews with a proxy informant. Proxy informants were family members or close friends of the deceased identified from police homicide or medical examiner files who seemed to be knowledgeable about the nature of the relationship between victim and perpetrator and who were willing to take part in the interviews. The controls were women selected by random digit dialing telephone survey techniques in the same cities where the IP femicides took place. The control sample response rate was 76.6%. We examined the risk factors for IPF among those women, entering the potential predictive variables (from the Danger Assessment lethality risk assessment instrument and literature review) in sets, starting with the most distal (demographics) to most proximal (incident level). Two models were derived, one for all of the risk factors prior to the fatal incident and one taking into account the incident level variables (Campbell et al., in press).

In addition to the femicide cases, we also collected data from a second group of cases, women in the same cities who were "almost" killed by their intimate partners. Women were considered the victims of attempted femicide and were designated as such if they met the following criteria:

- Gunshot wound or stab wound to the head, neck, or torso.
- Strangulation or near drowning with loss of consciousness.
- Severe injuries inflicted that easily could have led to death.
- Gunshot wound or stab wound to other body part with unambiguous intent to kill.
- If none of above, unambiguous (independent witness or police report of such) intent to kill.

Our research questions were: (a) Are victims of attempted IP femicide similar to victims of IP femicide? (b) If they are similar, can we combine the risk factor models? (c) Are the multivariate models of risk significantly different between attempted and actual IP femicide?

When designing the study, we considered using only victims of attempted femicide as our cases since they would presumably be more accurate reporters of the risk factors than proxy informants. However, we decided that there were at least four problems to this approach also. First, such an approach would eliminate most homicide-suicide cases, since most of these are completed (vs. attempted) femicides and constitute as much as one third of IPFs (e.g., Morton,

Runyan, Moracco, & Butts, 1998). Secondly, this approach would eliminate those cases considered "overkill," when the means of killing the victim is more than what is necessary to cause death (e.g., multiple gunshot or stab wounds), which is estimated at 10-20% of intimate partner femicides. We also were uncertain about how much of the difference between an attempted and actual femicide was related to the weapon involved rather than other risk factors and were concerned that an approach limited to attempted femicides might minimize the role of guns. In other words, we were concerned that many of the attempted femicides might have been completed femicides if a gun had been used. Finally, we were concerned about the representativeness of any sample of attempted femicides. We found that no one source of data on attempted femicide resulted in a representative sample. We found that samples from trauma centers were biased in favor of serious injuries while the severity of injury was often more related to fate or luck than intent. Police aggravated assault files also had their own biases with the level of assault charge varying by jurisdiction and the perceived importance of the victim rather than other more objective criteria. In addition, police assault databases were extremely cumbersome to search in most jurisdictions, without differentiation by any criteria resembling ours for attempted femicide. We also explored district attorney or prosecuting attorney files, finding that plea-bargaining, defense attorney skill level, and prior offenses of any type were far more important in determining the charges than severity of current offense. We also investigated domestic violence advocacy sources, and firearm injury or firearm crime databases, but found that all have problems in obtaining a representative sample. We therefore decided to obtain a convenience sample of attempted femicide victims, working primarily from trauma centers, prosecuting attorney files and police aggravated assault or felony assault files. In some cities, antiquated computer systems made it almost impossible to search the most representative database. We therefore allowed each urban city site to determine which source of data for attempted femicides was the most representative from their evaluation and also presented at least reasonable pragmatic challenges in terms of data collection. We also had even more trouble locating the victims of attempted femicide. These women, especially if they had the resources (educational, occupational, financial) to do so, understandably had often moved from the city where the attempt on their lives took place.

METHODS

Therefore, the final sample of 183 attempted femicide victims offered the advantage of direct rather than proxy interviews but the disadvantage of a less representative sample and a lower location rate (56% vs. 68%), although an even better although similar response rate once contacted (90% vs. 82%).

We therefore conducted a multivariate risk factor analysis of the attempted femicide victims as an attempt at validating the femicide risk factor analysis (Campbell et al., in press). Our final sample consisted of 220 femicide victims, 143 attempted femicide victims, and 356 abused controls, with women not previously subjected to IPV not considered as part of this analysis. The abused women were recruited from the same 12 cities as the actual and attempted femicides, using random digit dialing. Women were abused if they said they had been physically or sexually assaulted, or threatened with assault, by a current or ex-intimate partner during the

past 2 years using a modified Conflict Tactics Scale. See Campbell and associates (in press; Sharps et al., 2001) for a more detailed description of the study methods. Our participation rate for the abused controls was 76.6%.

ANALYSIS AND RESULTS

In this comparison analysis, we first attempted to determine what differences if any, existed between the two samples of attempted and actual victims of IP femicide. Although most of the bivariate relationships were similar between the two groups, we found one significant demographic difference in the multivariate analysis. The perpetrators of IP attempted femicide were significantly more likely to be African American than either the perpetrators of completed femicide and the perpetrators of IPV not characterized by homicidal acts. It is not clear if that difference is because of other demographic characteristics (e.g., income, employment) or there is a racially determined difference. Post-incident interviews suggest evidence of the latter rather than the former. Our attempted femicide victims were less likely to have moved from the home where the assault occurred because of fewer resources. Therefore, we were more likely to locate poorer women (more likely to be involved with an African American perpetrator because of the disparities in income related to minority ethnicity in U.S. cities) who were therefore more likely to be in our attempted femicide sample.

On the 16 individual risk factors measured by the Danger Assessment (DA) (Campbell, 1995; Campbell, Sharps, & Glass, 2001), both samples were very similar. All of the 16 original DA risk factors had been significantly higher in cases than controls except for victim suicidality. Where there were fairly large differences between attempted and actual femicide cases, they were primarily risk factors where the percentage of risk factor presence was higher among the attempted femicide victims (prior attempts at choking: 54% vs. 43%, forced sex: 52% vs. 46%, perpetrator suicide threats: 32% vs. 24%; victim believed perpetrator is capable of killing her: 53% vs. 47%) where the difference could be mainly attributed to high percentages of don't know responses on the part of the proxy respondent (71%, 70%, and 40%, respectively). Another commonly discussed risk factor not on the DA, perpetrator purposely harmed a pet (15% attempted vs. 8% actual femicide) also had a relatively high percentage of "don't know" responses among the proxies. Two of the DA risk factors had a smaller percentage of yeses amongst the attempted femicides than the actual: increase in frequency of prior DV, and access to guns (66% vs. 50%, and 72% vs. 53%, respectively) with smaller percentages of missing data from the proxies (19% and 38%). Stalking was also strikingly more common among the femicides than the attempted (62% vs. 50%). These differences, especially the gun access and the stalking perhaps did make the incident more likely to be lethal.

We used multiple logistic regression analysis, comparing the attempted femicides with abused controls and also with the significant risk factors from the femicide analysis. We entered the risk factors in sets, starting with those most distal to the violent event (demographic factors), then adding general violence individual factors of both victim and perpetrator, relationship characteristics, then couple violence history, threatening behavior, and finally incident level characteristics. The two risk models considered most important are the final model predicting risk prior to the lethal incident (factors that could be used for lethality or dangerousness

assessments in domestic violence cases) and the model including factors specific to the lethal, near lethal, or most violent abusive incident.

Our multiple logistic risk models were also primarily similar between the actual and attempted femicides rather than different. The most striking differences were in the demographics and in the risk from prior arrest for domestic violence. In both of the final models, the risk (OR = 6.3 and 9.2) attributable to African American perpetrators over and above that related to unemployment (the only demographic difference in the femicide analysis) was strong and significant for the attempted femicide cases only. Unemployment was slightly less important in the attempted femicide analyses, and college education of the perpetrator was a significant protective factor (OR = 0.3 and OR = 0.1). In both models and for both samples of cases, prior arrest for domestic violence was a significant risk factor, but it was protective for the attempted femicide cases, and represented increased risk for the actual victims. Separation was only a risk for the attempted femicide victims under conditions of a highly controlling perpetrator, and violence increasing in severity and frequency was only a significant risk factor for the attempted femicides (in both models). Forced sex dropped out from the incident level model for the actual femicides but became even stronger for the attempted femicides. For both the attempted and actual femicide cases, perpetrator intoxication became a significant risk factor at the incident level and was stronger (OR = 5.0 vs. 2.3) for the attempted femicide incident level risk model. Using a gun in the incident was the strongest risk factor in both sets of cases for the incident level model. The attempted femicide model correctly predicted 5% more of the cases in both case samples.

DISCUSSION

The basic similarities of our attempted and actual femicide bivariate and risk factor analyses, in spite of a major demographic difference in the perpetrators in the two samples, encourages us to think that the samples can both be used to identify risk factors for intimate partner femicide in cases where there has been prior domestic violence. We believe that the demographic differences in the two samples resulting in demographic risk model differences were primarily due to sampling error. Primarily, we included a greater proportion of poor attempted homicide victims because they were unable to relocate, and we could therefore find them. We think that the increased risk for attempted femicide we found related to the perpetrator being African American and not college educated over and above being unemployed was confounded with this victim resource issue. We also think that being African American may also have resulted in a more serious charge for the attempted femicide perpetrators, which therefore resulted in those cases being more likely to be found in our criminal justice searches for attempted femicide cases, another source of sampling error. In spite of these demographic differences, however, both our bivariate and multivariate analyses had very similar patterns of risk.

There were several risk factors that were strong in the attempted femicide analysis (e.g., forced sex, abuse increasing in frequency, and prior threats with a weapon) that are probably true risk factors even though they were not as important in the femicide model analysis. We are persuaded that the large proportion of proxies who did not know whether or not these factors

were present is probably the reason for this discrepancy, especially since the bivariate analysis was similar on these factors and the increased risk was present in both models.

The one risk factor that behaved very differently in the two samples was prior arrest for domestic violence, being significantly protective for attempted femicide victims but a significant risk factor for completed femicides. This factor may have been confounded with perpetrator race, with African American men having higher arrest records for all kinds of crime, including domestic violence. Theoretically, one can envision this factor operating in both ways, exacerbating risk as a proxy for serious domestic violence, or protecting from lethality, if the arrest results in effective batterer intervention, increased likelihood of protective orders, or increased protective measures taken by the victim. Whether it operates as a risk or protective factor may also depend on the city where the incident occurred. In order to really examine what is operating in this study, we will need to examine the study files individually, linking this variable with other contextual, criminal justice, intervention, and separation variables. The finding points us in an important direction for further analysis.

CONCLUSIONS

This comparison analysis demonstrates that both data sets, attempted and actual femicides with proxy informants have strengths and weaknesses for risk factor analysis for intimate partner femicides. The big advantage of the attempted femicide database was far less missing data than the proxy informants for the actual femicides, especially on sensitive and theoretically important abuse related variables. This difference resulted in a more accurate fit of the attempted femicide data. On the other hand, the actual femicides offered a far more representative sample, including overkill and homicide-suicide cases plus more complete police investigation files with which to compliment the proxy information and assess validity. We believe that using both of these kinds of databases are superior to the SHR because the majority of the risk factors that we found in both analyses are not available in the SHR but are available from abused women.

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CHAPTER EIGHT

POSTERS/DISPLAYS

PILOTING A NATIONAL REPORTING SYSTEM FOR VIOLENT DEATHS

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A model reporting system for suicides and homicides is being piloted in 12 states and metropolitan areas across the country as a step toward establishing a national reporting system for violent deaths. The Harvard Injury Control Research Center is coordinating the pilot, and the Centers for Disease Control and Prevention is planning to implement a National Violent Death Reporting System (NVDRS) based in large part on the pilot. As a detailed, ongoing census of homicides and suicides, the NVDRS will be a vital data source for homicide researchers.

Personnel from the local reporting sites gather existing information on violent deaths from coroners/medical examiners, police, crime labs, and death certificates. They code the data using a Uniform Data Elements manual that the group developed jointly and forward the data to a centralized, incident-based, relational database.

The poster session solicited the input of Homicide Research Working Group members on data elements and code lists for characterizing the precipitating circumstances of homicides.

LINKING THE GUN WITH THE DEATH: THE WHO, WHEN, AND WHERE OF THE GUN'S FIRST PURCHASE

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Objectives:

To link firearm injury surveillance data with information on the gun's first purchase. To examine the time, place, and victim relationship with the time, place, and first purchaser of the gun.

Methods:

Utilize Firearm Injury Reporting System data (linked records from the county medical examiner, law enforcement, and the state crime laboratory on all firearm deaths) and link with Bureau of Alcohol, Tobacco, and Firearms (ATF) tracing data to characterize the first purchase. Main study variables (three month pilot, November 1995 to January 1996) include: victim (demographics, residence, cause of death), location and time of event, shooter (demographics, residence), firearm (make, model, serial number, caliber, barrel length, manufacturer or importer), relationship to first purchaser, location and time of purchase.

Results:

Trace requests were made on 22 firearms. Ten (45%) traces were completed, for 5 homicides and 5 suicides. The purchaser and possessor were related/associated in 4 (40%) of the completed traces (1 homicide and 3 suicides). One suicide gun was purchased within 7 days of the event. Of homicide guns, one was purchased within 30 days and one within 45 days. Eight (80%) guns were purchased in the same county as the death event. Of the incomplete traces, 9 (75%) had insufficient information on the firearm, and 3 (25%) were manufactured prior to 1990.

Conclusions:

Linkage with ATF trace data will require specific firearm information not routinely recorded in reports. Detailed linked data is crucial to inform organizations, agencies, and policy makers about the characteristics of firearm deaths in the United States.

FRAMING HOMICIDE: MURDER-FOR-HIRE FILMS
A Poster Presentation of Research in Progress on Murder-for-hire Films

James A. Black and Nicole M. Cravens
Department of Sociology, University of Tennessee
901 McClung Tower, Knoxville, Tennessee 37996

This poster presentation displays how we are examining one type of homicide found in films, murder for hire, to see how these films *represent* this type of killing as lethal violence, how they *characterize* the central figures, and how they frame the cultural acceptability of murder. As such, it is a study of film as social practice. Studying films *within* social and cultural contexts, that is, examining them in terms of wider arguments about representation rather than for their *effects* on social and cultural practices, permits criminologists to examine films as documents that frame larger cultural themes in a communication context.

To begin our search for murder-for-hire films, we defined a murder-for-hire movie as *a motion picture, of no specific genre, containing any or all elements of a sequence of interactions in which one person solicits another to kill a third person for gain, monetary or otherwise*. We generated a catalogue of movies fitting this definition by initially compiling a haphazard list of movies with which we became familiar in conjunction with our larger murder-for-hire research project. From there, we consulted three sources to obtain a more systematic list of films made in the 1990s: John Willis, *Screen World;* Beth A. Flanner (ed.), *Magill's Cinema Annual;* and *Media Review Digest*. Additional movies from other periods have been brought to our attention by word of mouth, lists generated by others, and browsing rental shelves. We do not claim to have a complete and exhaustive list of murder-for-hire movies for the nineties and most certainly not for other time periods. We do, however, believe the list is fairly representative of this type of film.

Our working list of murder-for-hire films includes: *A Perfect Murder, The Big Hit, Bulletproof Heart, Crimes and Misdemeanors, The Day of the Jackal, Desperado, Diary of a Hit Man, El Mariachi, Faithful, The Fugitive, Ghost Dog, Grosse Point Blank, Hit Woman, I Love You to Death, The Juror, The Killing of a Chinese Bookie, Killing Time, The Last Seduction, Little Odessa, Man with a Gun, Over the Wire, Point of No Return, Pulp Fiction, The Professional, Red Rock West, Things to Do in Denver When You're Dead, Three Days of the Condor, To Die For, Two Days in the Valley, Unforgiven,* and *U Turn.*

Examining murder-for-hire films from various time periods, we study how murder is represented in them and how the central figures in murder-for-hire killings are characterized. A three-pronged scheme is developed to analyze how homicide is framed. We classify films in terms of primary and secondary plot narratives, character centrality, and cultural acceptability of homicide. Our aim is to determine how these combine to influence the representation of solicitors, hit men, and targets and depict murder for hire as a lethal crime.

PLOT NARRATIVES

Plot narratives are the stories told, the "text." In some films, secondary plot narratives can be identified.

PRIMARY PLOT NARRATIVES

Thriller. Films that contain repeated episodes of killings, violence when least expected, and unanticipated violence. Examples: *The Last Seduction, The Day of the Jackal, Three Days of the Condor,* and *Little Odessa.* **Caper**. Emphasis is on the contracting, negotiating, and/or executing a murder for hire. There is detailed attention given to the planning. Examples: *Crimes and Misdemeanors* and *Unforgiven.* **Gothic.** Consists of a reconstruction of the central character as morally alien, driven by aberrant, unnatural forces, and invoking images of primitive, primordial/monstrous motives. Example: *Ghost Dog*. **Justice Violated/Justice Restored**. Characters are double-cast as victim/killer/hero. Usually there is a violation of justice and with the murder for hire and/or its aftermath, and justice is restored. Variations on plot narrative are common. Examples: *To Die For* and *A Perfect Murder*. **Chronicle of a Criminal Career.** Emphasis is on the transformation into a killer or on the desistence or termination of a career. Mainly focuses on hit men. Examples: *The Killing of a Chinese Bookie* and *Diary of a Hit Man.* **Action.** There is no well-defined plot, killings are spectacles, and violent episodes are used to string film together. Example: *Pulp Fiction*.

SECONDARY PLOT NARRATIVES

Films frequently fall into more than one category. No particular categories dominate murder-for-hire narratives. A lesson of some value is learned from noticing what is *absent* from plot narratives, namely much in the way an emphasis on law enforcement/criminal justice themes such as investigative work, processing cases, sentencing, and so forth.

Mystery and Detective Stories. Emphasis is on investigation, search for clues, entails discovery of the murder for hire. Examples: *The Fugitive* and *The Juror*. **Revenge and Vigilantism.** Variations are on a general theme of personal revenge; hit men are drawn into solicitor's personal grudges and revenge motives. Example: *Unforgiven.*

CHARACTERIZATIONS

A second way to classify films is by concentrating on character centrality. Characters with a strong, commanding role, visible throughout the film, and whose personal attributes and characteristics are revealed. Films can be categorized as essentially solicitor films, hit man films, or target films.

SOLICITOR

The solicitor is the one paying for/hiring/contracting the killing. Solicitor films are far less prevalent. Usually successful, middle-class, and White, solicitors are confronted with an intractable problem for which the only perceived solution is murder. To continue their own

successful lives, finding someone else to kill for them is imperative. They do not see themselves as killers, but their motives run deeper than simply wanting someone killed. They stand to gain from the killing in some way that will make their lives whole again, maybe even better. Money problems, difficulties with former spouses, jealousy, revenge, love affairs, long-term abuse, and so forth, all can be found driving solicitors to hit men. Examples: *Crimes and Misdemeanors, A Perfect Murder,* and *To Die For.*

HIT MAN

The hit man is referred to as the "trigger." They can be amateur or professional. As might be expected, characterizations of hit men serve as the representational models that frame our cultural perceptions of murder for hire. More than that, hit men are characterized as seedy drifters with no legitimate claim to a mainstream existence. Their lives are not fixed in the realm of conventional, modern, morally acceptable behavior. They generally have dark relationships with hookers, bartenders, ex-cons, shady underworld figures, and the like. Examples: *Red Rock West* and *U Turn.*

TARGET

Target films, ones in which the victim is a central figure, are the least common. For the most part, targets are portrayed as just as cold-blooded as solicitors. The victim. Examples: *The Fugitive* and *The Juror.*

CULTURAL ACCEPTABILITY

The narrative plots and characterizations found in murder-for-hire movies carry a message about the cultural acceptability of this kind of killing. The message can be one of justification, repugnance, or ambivalence.

JUSTIFIED

Violence occurs as culturally acceptable acts that are not viewed as repugnant. Offenders' lofty motives transcend even their lethal and illegal acts. Example: *Unforgiven.*

UNJUSTIFIED

Violence is culturally unacceptable and repugnant. Killings are senseless, ruthless, and indefensible. Examples: *The Last Seduction* and *Little Odessa.*

AMBIVALENT

Violence is perceived with mixed and contradictory emotions, neither justified nor unjustified. Intense feelings are indecisive. Example: *To Die For.*

Murder-for-hire films, for the most part, fall far short of representing hired killings in a way that contributes to a "standard frame of visibility" suitable for advancing cultural discourse about

it as lethal violence. These films tend to deal with killings contextually and through characterizations of participants in ways that foster acceptance or ambivalence. Contextually, so many films contain a mob/professional linkage it is difficult to dislodge murder for hire from this culturally unique setting. It offers ways to view murder for hire as something engaged in by "marginal" but not reflective of modern America. And by downplaying solicitors and targets as central characters, while casting hit men as some variation on murky underworld figures, the acceptable and or ambivalent nature of this kind of violence is further reinforced.

NATIONAL RIFLE ASSOCIATION:
Literature Display

Paul H. Blackman
NRA Institute for Legislative Action
11250 Waples Mill Road, Fairfax, VA 22030

As might be expected, most of the materials available in hard copy, or on the Internet, from the National Rifle Association and its lobbying arm, the Institute for Legislative Action (ILA), is not really intended for academic research. The materials certainly take advantage of academic research, but most material is intended to explain the position of the NRA and ILA to those confronted with information and viewpoints from the other side of the "gun control" debate, or for the assistance of NRA members wishing to be able to discuss the details of current debates on particular gun issues and legislative responses, and to understand and comply with the various gun laws.

As the literature display makes clear, the materials take advantage of academic research, including both NRA-ILA summaries of the findings of the research, a bibliography of research (particularly on the constitutional right to keep and bear arms), and reproduction of material by academic researchers on the gun issue. Some of those materials, as well, may be of use to homicide researchers whose studies touch on firearms involvement in homicide. For example, while our summaries of state firearms laws are produced for the benefit of our gun-owning members seeking to understand the laws applicable to their activities, those summaries have also proven beneficial to non-NRA members such as researchers conducting statistical analyses, which include gun laws as factors. And our fact sheets, in addition to explaining our position on issues that may be of interest to homicide researchers--such as opposition to a national reporting system for firearms-related injuries and deaths--may provide guidance to sources of additional information.

The Internet, and World Wide Web, are modifying the way some of our materials are available. The primary goal of the web site redesign is to make content organization user-friendly. In particular, the research section of the site will be organized by subject and homicide researchers may find much of the material in the "Crime & Criminal Justice" area useful. Much of the materials available from NRA and ILA are available on the ILA web site (www.nraila.org), including the aforementioned state firearms laws summaries as well as links to other research and government resources.

CHICAGO HISTORICAL HOMICIDE PROJECT

Leigh Bienen, Project Director
Northwestern University, School of Law
357 E. Chicago Avenue, Chicago, IL 60611

Posters and comment by Richard Block, Roland Chilton, Greg Weaver,
and Other Project Collaborators

The Chicago Historical Homicide Project at Northwestern University School of Law began with the discovery of an unusually rich database of more than 11,000 homicides in Chicago from 1870-1930, a handwritten log kept consistently over the entire period by the Chicago Police. The uninterrupted period of time alone, and a single institutional record keeper, makes this an enormously important historical resource. The first stage of the Chicago Historical Homicide Project at Northwestern University School of Law culminated with the November 17, 2000, Conference at the Northwestern University School of Law titled "Learning From the Past, Living in the Present: Patterns in Chicago Homicides, 1870-1930." That Conference brought together members of the public, the academic community of historians and legal scholars, archivists, and others for a series of panels.

The current phase of the Project will culminate with the publication of the Symposium Issue of the *Journal of Criminal Law and Criminology* in the Summer/Fall of 2001. The next phase of the Project will be the preparation of an edited, interdisciplinary volume with some new researchers, and with some of the original researchers contributing new papers, to be presented for publication to an academic press. The following papers are being edited for the Symposium Issue or the edited volume:

Introduction and Overview of the Data Set. Leigh B. Bienen, Northwestern University School of Law.

Deconstructing the Bulge: Understanding the Increase in Homicides during the Decade of the 1920's. Leigh B. Bienen, Northwestern University School of Law.

Capital Punishment for the Crime of Homicide in Chicago: 1870-1930. Derral Cheatwood, University of Texas, San Antonio.

Firearm Deaths, Gun Availability, and Legal and Regulatory Changes: Suggestions from the Data. Greg S. Weaver, Auburn University.

Homicide in New York and Los Angeles and Chicago. Eric H. Monkkonen, University of California.

I Loved Joe, But I Had To Shoot Him: Homicide by Women in Turn-of-The Century Chicago. Jeffrey S. Adler, University of Florida.

Lunatics and Anarchists--Political Homicide in Chicago. Alderman Edward M. Burke, City of Chicago Committee on Finance.

Owing to the extreme youth of the accused: The Changing Legal Response to Juvenile Homicide. David S. Tanenhaus, Northwestern University School of Law.

Wife Murder in Chicago: 1910-1930. Cynthia Grant Bowman, Northwestern University School of Law, and Ben Altman.

Economic Variables and the Incidence of Homicide in the Data Set. Richard Brooks, Northwestern University School of Law and Steven Raphael, University of California, Berkeley.

Homicides among Chicago Families, 1870-1930. Roland Chilton, The University of Massachusetts at Amherst.

The Practice of Law in the1920's. Thomas Geraghty, Northwestern University School of Law.

Patterns in Infanticide: Then and Now. Michelle Oberman, DePaul University College of Law.

Location of Homicide as an Explanatory Variable. Richard Block, Loyola University Chicago.

Infanticide in*1870-1930, in Comparison to Other Periods*. Richard McCleary, University of California at Irvine.

The Epistemology of Approaches to the Data Set. Hirokazu Miyazaki, Northwestern University.

STRATEGIC APPROACHES TO COMMUNITY SAFETY INITIATIVE - Partnering Researchers with Practitioners to Reduce Violent Crime and Fatalities in 10 U.S. Cities

James R. "Chip" Coldren, Jr.
Center for Research in Law and Justice, Institute for Public Safety Partnerships
John Howard Associates
300 West Adams Street, Suite 617, Chicago, IL 60606

For the past few years, the U.S. Department of Justice has funded, and supported in other ways, innovative approaches to crime control and crime prevention in 10 U.S. cities. Called the Strategic Approaches to Community Safety Initiative (SACSI; see Groff et al., 2001; NIJ, 1999), this new program bears similarity to other comprehensive approaches to community safety and revitalization like the Comprehensive Communities Initiative (BJA Bulletin, March 2001; Kelling, et al., 1998) and Weed and Seed (Dunworth, et al., 1999). Its chief unique characteristic is found in the direct funding of research partners to become integrated into problem-solving teams comprised of law enforcement, criminal justice, local government, community advocates, and others. The funding of research partners presents several challenges for researchers such as overcoming organizational culture barriers to effective collaboration between academics and researchers, and placing evaluators in the delicate position of assessing programs they help create and whose success they have an investment in.

Typically, SACSI projects (currently operating in Albuquerque, Atlanta, Detroit, Indianapolis, Memphis, New Haven, Portland, Rochester, St. Louis, and Winston-Salem) address violent crime problems. Recent funding for SACSI focuses on projects relating to gun homicide prevention, some of which bear some resemblance to Virginia's popular "Project EXILE." The SACSI National Assessment Team will discuss some of its research findings to date, touching on issues relating to SACSI implementation, integration of researchers into problem-solving projects, and will emphasize the study of collaborative problem-solving partnerships.

THE NATIONAL YOUTH GANG SURVEY

Arlen Egley, Jr., Research Associate
National Youth Gang Center
P.O. Box 12729, Tallahassee, FL 32317

ABSTRACT

National Youth Gang Center (NYGC) literature pertaining to the National Youth Gang Survey (NYGS), as well as recent publications from OJJDP's Youth Gang Series, will be displayed. These include highlights of the 2000 NYGS, trends from 1996 to 2000, the changing characteristics of youth gangs, differences in youth gangs across differing jurisdictional types, and other related material. These documents can be downloaded at www.iir.com/nygc/. Also, information regarding other NYGC tasks will be provided to interested parties.

OVERVIEW

The National Youth Gang Survey is an annual survey of a representative sample of over 3,000 law enforcement agencies across the United States. The survey has been conducted by the National Youth Gang Center since 1996. Survey participants provide information pertaining to a wide range of current gang-related issues. Recurring topics include the prevalence of gang activity, number of gangs and gang members, demographic characteristics of gang members, level of gang member involvement in serious and violent offenses, and number of gang-related homicides. Topics unique to the latest survey include law enforcement procedures for recording gang-related crime, the effect of gang members returning from prison, and the use of various programs and strategies designed to combat the youth gang problem.

LITERATURE TABLE
NATIONAL INSTITUTE OF JUSTICE (NIJ)
RESOURCES AND RESEARCH ON LETHAL AND NON-LETHAL VIOLENCE

Kara Emory
National Criminal Justice Reference Service (NCJRS)

The literature display will include single copies of relevant NIJ publications and order forms. These displayed publications are also available online at www.ojp.usdoj.gov/nij. Kara Emory will not be present at the meeting, but if you have any questions, please contact her at 202.305.9215 or emoryk@ojp.usdoj.gov. You can also contact Lois Mock, who will be attending the meeting or can also be reached at 202.307.0693 or mockl@ojp.usdoj.gov.

CANADIAN CENTRE FOR JUSTICE STATISTICS
REPORTS ON LETHAL AND NON-LETHAL VIOLENCE

Orest Fedorowycz
Policing Services Program, Canadian Centre for Justice Statistics, Statistics Canada
120 Parkdale Avenue, 19th Floor, R. H. Coates Building
Ottawa, Ontario K1A 0T6 CANADA

LITERATURE TABLE

The literature display will include single copies of relevant CCJS publications and order forms. These displayed publications are also available online at www.order@statcan.ca.

POWERPOINT PRESENTATION (SELF-DIRECTED)

Canada-USA Comparisons of Juvenile Homicide Rates (Work in Progress)

Partners

Howard Snyder & Paul Harms, Office of Juvenile Justice and Delinquency Prevention
Stan Lipinski & Stephen Mihorean, Justice Canada
Holly Johnson (holly.johnson@statcan.ca), Canadian Centre for Justice Statistics

Project Summary

International crime trends are an issue of growing importance for many countries around the world. However, due to differences in offense classifications and police and sentencing procedures, direct comparisons of most crime categories are problematic, even for countries as similar as Canada and the United States. Recently, OJJDP, Justice Canada and the Canadian Centre for Justice Statistics have discovered a shared interest in conducting research into cross-cultural comparisons of juvenile homicides.

Working collaboratively, these three organizations have begun to compare patterns and trends in homicides of children and youth (defined as under 18 years of age). A few overview slides have been prepared to share with the Homicide Research Working Group. These slides show that, despite a higher rate of juvenile homicide overall, there are not marked differences between the two countries for children in the middle years, or for homicides committed without firearms.

Further analysis will focus on victim-offender relationship, more detailed analysis of sex of victims and offenders, and multiple victims and offenders. This project will also explore comparative trends in suicide.

Please note that this work is in the early stages and should not be distributed or published in any way. Future plans are to pursue opportunities to publish the results of this study through various US and Canadian government publications.

THE DEMOGRAPHY AND GEOGRAPHY OF HOMICIDE IN THE D.C. METROPOLITAN AREA
Poster Presentation

Caterina Gouvis, Research Associate
The Urban Institute, 2100 M Street, NW
Washington, DC 20037

This poster presentation will provide a visual display of the demographic and locational characteristics of homicide in the Washington, D.C., area. The presentation will be largely based on the creation of a geographic information system to analyze the temporal and spatial patterns of homicide victimization. The presentation will examine clusters of victimization and the relationship between clusters and a number of locational features, including the locations of subsidized housing, alcohol outlets, schools, parks, recreational centers, and major transportation routes.

HOMICIDAL POISONINGS IN THE UNITED STATES -- AN ANALYSIS OF VICTIM AND OFFENDER CHARACTERISTICS[1]

Arthur E. Westveer and John P. Jarvis
Behavioral Science Unit
FBI Academy
Quantico, VA 22135

John H. Trestrail, III
Center for the Study of Criminal Poisoning
Grand Rapids, MI 49506

ABSTRACT

Various demographic patterns of homicidal poisonings in the United States were identified in a recent study examining characteristics of the victims and their offenders in such incidents (Westveer, Jarvis, & Trestrail,1996). Similar analyses are conducted herein, examining data from the most recent years of 1990-1999 representing reports on 346 poisoning homicides in the United States, obtained from the FBI's *Uniform Crime Reports* (UCR). Each of these reported incidents involved a single poisoned victim and at least a single poisoning offender. Factors analyzed for each victim and offender included: age, sex, race, relationship of victim to offender, category of poison, month, year, geographic location, and crime classification. The goal of this study is to examine the most recent data available and determine the consistency of patterns in homicidal poisonings. To this end, comparisons with the earlier analyses covering the period 1980-1989 are noted (Westveer et al.,1996). Through this effort we attempt to validate and refine homicidal poisoner characteristics that could be further utilized by forensic scientists and law enforcement personnel to assist their criminal investigations. The importance of cooperation between the medico-legal science community and law enforcement is underscored, and such findings serve as a foundation for the continued examination of behavioral attributes of this subtle type of killer.

REFERENCE

Westveer, A., Trestrail, J., & Pinizzotto, A. (1996). Homicidal poisonings in the Unitied States: An analysis of the Uniform Crime Reports from 1980 through 1989. *American Journal of Forensic Medicine and Pathology, 17(4)*, 282-288.

[1]The following is an excerpt from a work in progress. The text and tables are clearly not a complete manuscript but instead are offered to spark discussion and comment on the work currently underway.

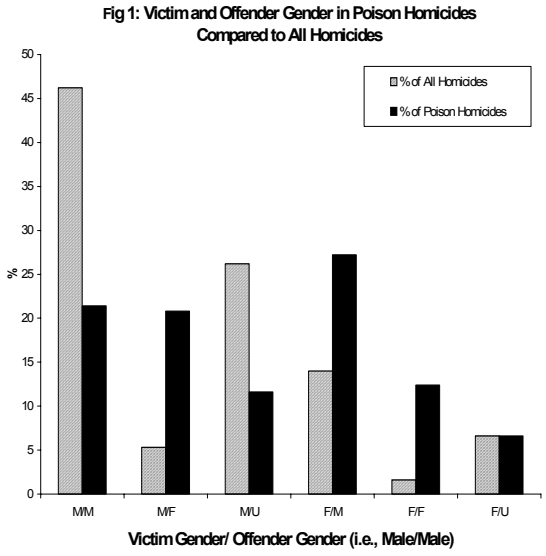
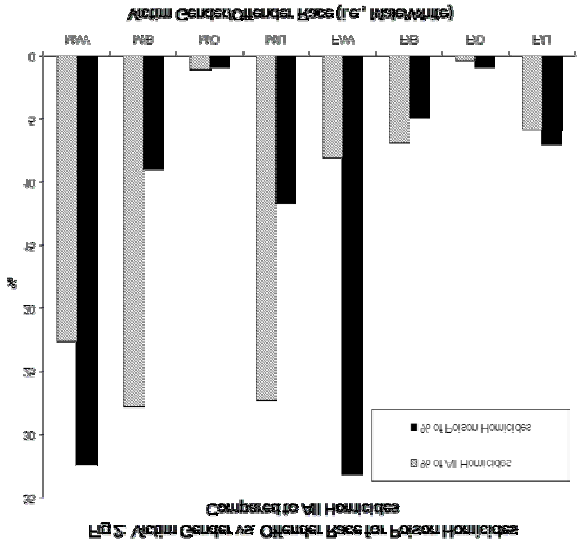


Fig 1: Victim and Offender Gender in Poison Homicides
Compared to All Homicides
% of All Homicides
% of Poison Homicides
%
MM
MF
MU
FM
FF
FU
Victim Gender/ Offender Gender (i.e., Male/Male)



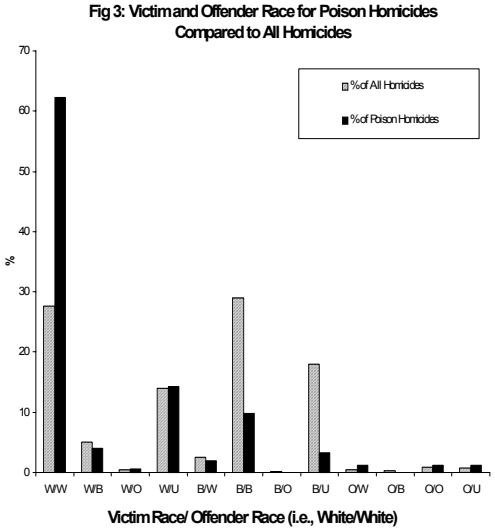


Fig 3: Victim and Offender Race for Poison Homicides
Compared to All Homicides
% of All Homicides
% of Poison Homicides
%
WW
WB
WO
WU
BW
BB
BO
BU
OW
OB
OO
OU
Victim Race/ Offender Race (i.e., White/White)

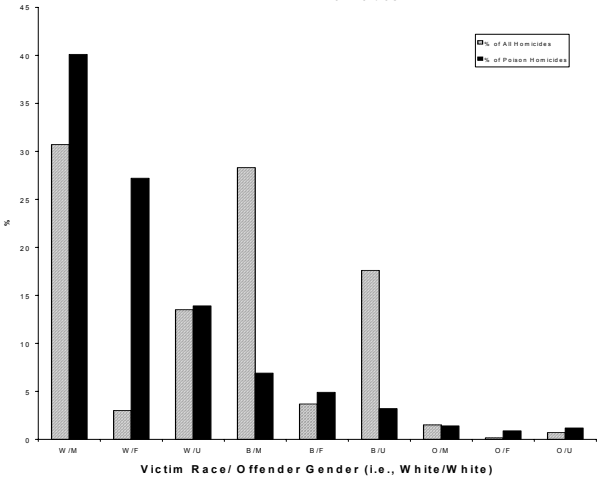


Fig.4: Victim Race and Offender Gender for Poison Homicides Compared to All Homicides
% of All Homicides
% of Poison Homicides
%
W/M
W/F
W/U
B/M
B/F
B/U
O/M
O/F
O/U
Victim Race/ Offender Gender (i.e., White/White)

Fig 5: Age of Poisoning Homicide Victims Compared with All Homicides

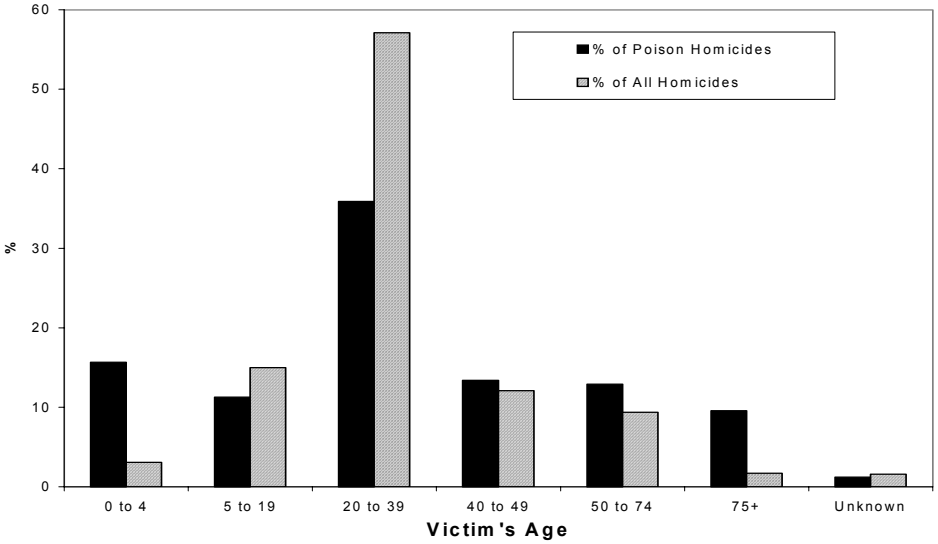
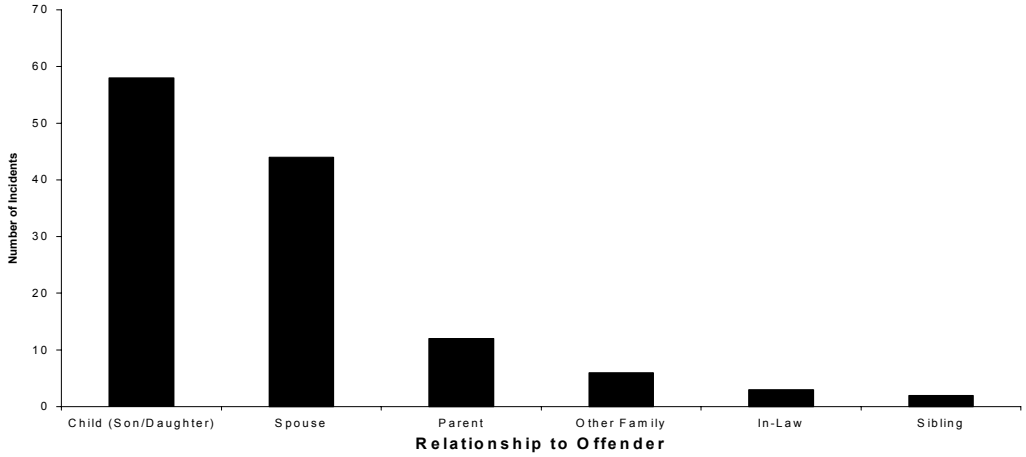


Fig 6: Relationship of Poisining Victim to Offender within Family



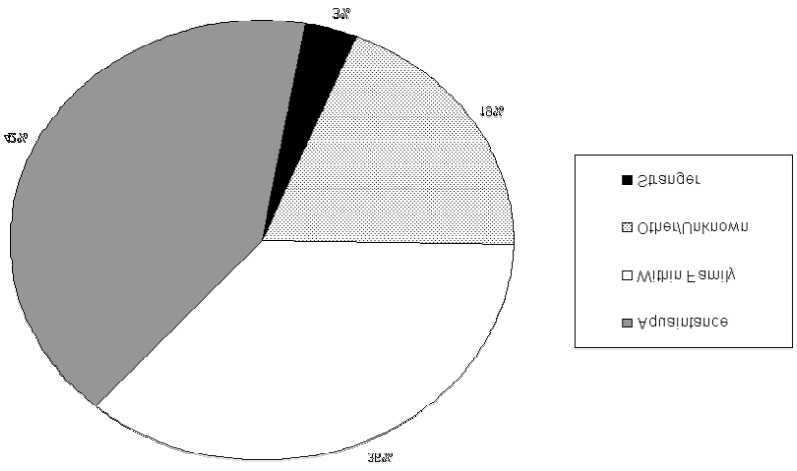


Fig 7: Relationship of Poisoning Victim to Offender

NIOSH RESEARCH ON WORKPLACE VIOLENCE

Lynn Jenkins
National Institute for Occupational Safety and Health (NIOSH)
Division of Safety Research
Morgantown, WV 26505

The National Institute for Occupational Safety and Health (NIOSH) first published data indicating that homicide was among the leading causes of occupational injury death in 1988. Based on data from the National Traumatic Occupational Fatalities (NTOF) surveillance system, homicide was the third leading cause of occupational injury death during the decade of the 1980s, exceeded only by motor vehicle crashes and machine-related incidents. Furthermore, when the data were analyzed by sex, homicide was the leading cause of occupational injury death for women. Continuing to track the data, there was a cross-over in 1990 where homicide became the second leading cause of occupational injury death overall; it remained the leading cause for women. In more recent years, the total number of workplace homicides has declined, with 645 documented workplace homicides occurring in 1999. The occupations at highest risk include taxicab drivers, law enforcement officers, and retail workers. Homicides are only a fraction of the total workplace violence problem, however. Data from the Bureau of Justice Statistics (BJS) National Crime Victimization Survey (NCVS) indicate that more than two million non-fatal assaults occur while victims are working or on duty annually.

Risk factors for workplace violence include (but are not limited to) dealing with the public, handling cash, the delivery of passengers, goods, or services, working alone or in small numbers, having a mobile workplace, and working in community-based settings. Prevention strategies can take a number of forms and can be categorized into three broad categories: environmental design/engineering strategies, administrative controls, and behavioral strategies. The environmental design strategies address issues regarding the physical design of the work-place including visibility, lighting, physical separation of workers from customers, clients, and the general public through the use of bullet-resistant barriers or enclosures, as well as access and egress from the workplace. Administrative controls address issues regarding staffing plans, work practices, and workplace violence prevention policies and procedures. Behavioral strategies encompass a range of training for employees in non-violent response, conflict resolution, and hazard awareness.

Current NIOSH research on workplace violence focuses largely on evaluation of intervention strategies. Specific projects are evaluating the effectiveness of various strategies to reduce assaults and robberies of taxicab drivers (e.g., bullet-resistant barriers, digital cameras, training, etc.); evaluating the efficacy of regulations in the State of California specific to violence prevention in health care settings, looking at both process and outcome measures; and evaluating the feasibility of using local health departments to serve as a liaison for conducting intervention evaluation studies in hospitals, nursing homes, and other health care facilities. NIOSH also monitors data from various sources regarding the magnitude and distribution of workplace violence in U.S. workplaces, including data from the NCVS. A collaborative effort has been launched with the BJS to modify questions on the NCVS-2 (administered only to those who

experience a victimization) to improve capacity to identify the relationship of the victim to the offender, location, and occupation and industry of victims. These will be implemented in June 2001. A series of questions to be appended to the NCVS-1 (administered to all respondents) are currently being compiled and reviewed by an interdisciplinary team; the questions will be similar to the occupational violence type questions from the Victim Risk Supplement administered a number of years ago.

MEANS OF COMMUNICATION: SYMBOLIC MESSAGES IN GANG GRAFFITI

Tim Kephart, Department of Criminology
University of South Florida
Tampa, FL 33617
NOTE: Current Address Not Available

Many law enforcement officials believe that gangs communicate messages to both the community and to rival gangs through graffiti. Some social scientists have documented this as well; however, no recent research has examined gang graffiti for its underlying meaning. Empirical research on gang graffiti and gang communication through graffiti is limited.

This poster board presentation outlines and illustrates five forms of gang communication identified in the gang graffiti images. The data for this research derived from a mid-size city in Los Angeles County, California. Using 452 gang graffiti photos from a 3-month period, I found 5 forms of gang communication through graffiti. The 5 forms of gang communication were: (a) Publicity Graffiti, (b) Roll Call Graffiti, (c) Territorial Graffiti, (d) Threatening Graffiti, and (e) Sympathy Graffiti.

This poster board demonstrates three examples of each type of symbolic communication and offers a brief explanation of each form of communication identified.

NOT ALL FUN IN THE SUN: AN ANALYSIS OF HOMICIDE IN FLORIDA
Research in Progress

Christina L. Lanier and Lin Huff-Corzine
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INTRODUCTION

Since the 1800s (Redfield, 1880), researchers have been debating the impact that regional location may have on homicide. A question that is often addressed is the impact of southernness on homicide (e.g., Hackney, 1969; Gastil, 1971; Huff-Corzine, Corzine, & Moore, 1986; Nelsen, Corzine, & Huff-Corzine, 1994).

Studies investigating the connection between southernness and homicide, however, must begin by defining where the South is (Whitt, Corzine, & Huff-Corzine, 1995). Although a number of researchers using an equal number of operationalizations for southernness (e.g., Odum, 1936; Zelinski, 1973; Gastil, 1975) have examined this question, Florida has been viewed as an anomaly. Thus, the question remains as to Florida's southern status and the impact that this may have on homicide.

DATA AND METHODS

Utilizing data from the National Center for Health Statistics (1992), the homicide rate per 100,000 persons is calculated for the years 1989-1991 for each of the 67 counties in Florida. The independent variables, including percentage born in the South, for this analysis are acquired from the 1990 U.S. Census.

FINDINGS

Overall, an average of 62% of the population in Florida is born in the South. In agreement with Zelinski (1973), an examination of the spatial distribution of the percentage of persons born in the South reveals that most of the state's northern counties are populated by a higher percentage of persons born in the South.

TABLE 1. Total 1990 Population, Total Homicides 1989-1991 and Homicide Rate Per 100,00 Persons by Florida County, (N = 67)

County	1990 Pop.	Total Homicides	Homicide Rate
Alachua	181,596	43	8.17
Baker	18,486	6	10.91
Bay	126,994	31	8.39
Bradford	22,515	19	28.37
Brevard	398,978	58	4.96
Broward	1,255,488	169	4.61
Calhoun	11,011	6	18.49
Charlotte	110,975	12	3.65
Citrus	93,515	18	6.51
Clay	105,986	16	5.17
Collier	152,099	31	7.07
Columbia	42,613	29	23.01
Dade	1,937,094	305	5.61
DeSoto	23,865	14	20.39
Dixie	10,585	8	25.30
Duval	672,971	186	9.49
Escambia	262,798	60	7.88
Flagler	28,701	6	7.14
Franklin	8,967	2	7.49
Gadsden	41,105	21	17.25
Gilcrist	9,667	6	20.80
Glades	7,591	1	4.83
Gulf	11,504	3	8.74
Hamilton	10,930	4	12.40
Hardee	19,499	13	24.83
Hendry	25,773	14	20.40
Hernando	101,115	11	3.67
Highlands	68,432	18	9.02
Hillsboro	834,054	167	6.95
Holmes	15,778	5	10.78
Indian River	90,208	16	6.01
Jackson	41,375	21	17.13
Jefferson	11,296	6	17.90

County	1990 Pop.	Total Homicides	Homicide Rate
Lafayette	5,578	2	12.31
Lake	152,104	36	8.01
Lee	335,113	62	6.30
Leon	192,493	30	5.31
Levy	25,923	8	10.40
Liberty	5,569	2	12.09
Madison	16,569	7	14.17
Manatee	211,707	38	6.13
Marion	194,833	42	7.30
Martin	100,900	21	7.14
Monroe	78,024	23	10.12
Nassau	43,941	17	12.99
Okaloosa	143,776	20	4.82
Okeechobe	29,627	11	13.62
Orange	677,491	120	6.23
Osceola	107,728	20	6.52
Palm Beach	863,518	153	6.07
Pasco	281,131	40	4.83
Pinellas	851,659	123	4.90
Polk	405,382	94	7.90
Putnam	65,070	24	12.48
Santa Rosa	81,608	11	4.61
Sarasota	277,776	52	6.31
Seminole	287,529	45	5.41
St. Johns	83,829	19	7.66
St. Lucie	150,171	48	10.85
Sumter	31,577	8	8.57
Suwannee	26,780	16	20.24
Taylor	17,111	8	15.85
Union	10,252	2	6.59
Volusia	370,712	70	6.44
Wakulla	14,202	3	7.18
Walton	27,760	11	13.49
Washington	16,919	3	6.07

Again focusing on the spatial distribution, the relationship between the percentage of the population born in the South and the county homicide rate, the majority of counties in the North have higher rates of homicide than those in the South. As expected (Huff-Corzine, Corzine, & Moore, 1986), southernness increases the rate of homicide at the county-level in Florida.

DISCUSSION

Consistent with past literature, an increase in the percentage of a county's population born in the South increases the homicide rate in the state of Florida. In further analyses, models including a variety of cultural and structural variables will be assessed for their relative importance in explaining homicide in Florida.

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LITERATURE DISPLAY: RESOURCES OF ICPSR AND NACJD

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Approximately 80 data collections in the National Archive of Criminal Justice Data (NACJD) have data about various aspects of homicide. The NACJD exhibit explained how individuals could locate these collections (using "homicide" or "murder" as keyword search terms), learn more about their contents and structure, and download these data to their computer for statistical analysis. Some of these data collections are also available on the NACJD Web site for use with the online statistical analysis program. These data are useful for answering inquiries about homicide and for creating instructional exercises. Information was also provided on the Census 2000 data available from the Inter-university Consortium for Political and Social Research (ICPSR) and the schedule for future releases.

SOURCES AND ANALYSES OF HOMICIDE RESEARCH FROM THE FEDERAL BUREAU OF INVESTIGATION

James H. Noonan, Federal Bureau of Investigation
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POSTER PRESENTATION OVERVIEW

Over 17,000 agencies report their crime data through the Federal Bureau of Investigation's Uniform Crime Reporting (UCR) Program. Homicide data are collected by the FBI when agencies submit crime data through monthly summary reports, incident-level Supplementary Homicide Reports (SHR), and the National Incident-Based Reporting System (NIBRS). These data include summary and incident level information, such as victim-offender relationship and weapon use, which can be aggregated to agency, state, and national levels for the analysis and trending of homicides. In this overview I will present current and recent homicide research conducted by the FBI including homicide, kidnapping, and sexual assault profiling using NIBRS, domestic homicide, homicide trends, and the odds of murder victimization using the SHR.

A STRATEGIC EFFORT TO REDUCE HOMICIDES IN CHICAGO

Elena Quintana and Gary Slutkin
The Chicago Project for Violence Prevention, UIC-School of Public Health
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Overview

The Chicago Project for Violence Prevention develops and fosters collaborative relationships between law enforcement, city officials, grass roots organizers, residents, law-makers, clergy, and community-based organizations to reduce violence in Chicago. The Project activities are directed by ongoing evaluation. The evaluation team identifies the violence prevention strengths and gaps in the nine Chicago neighborhoods where the Project is most active. Quantitative and qualitative crime trend data, information regarding the implementation and evaluation of the strategic intervention, and ways to increase collaboration between key community stakeholders will be presented.

LIFE HISTORIES OF SERIAL MURDERERS

Barrie J. Ritter and Jack C. Ritter
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The poster session was an extension of an original study of the causes and consequences of multiple homicide. In that study, available, archival data provided an abundant and verifiable source of information on the life histories and personalities of the offenders, and were used to test theories about the cases. The characteristics of the crimes were examined to determine if there were similarities among the cases, and if there was a correspondence between persons and their crimes. The detailed biographies were then submitted to establish a database for further research. A representative sample included 27 cases covering the previous 100 years in England, Germany, France, and America (Ritter, 1988). At a more macroscopic level, the poster covers changes in serial murder rates over time and place in a 500-year time-line, delineating violence, key events, and the evolution of related ideas, such as "Beccaria versus Positivism."

M. Dwayne Smith's "Editor's Introduction" to Homicide Studies, 1999 (pp. 275-276) pointed to high profile cases as an area where "much remains to be accomplished," including clarification of "existing information" in a manner that may "break new ground in our understanding of homicide." High profile tragedies include increasingly frequent mass killings, a railway killer crossing the nation, and a series of death-row inmates with wrongful convictions. Are these completely separate problems, or are they interrelated? No one can understand these tragedies from the conflicting claims of experts who "clamor for credit" (Newman, 2000, p. 206) in a field of surprisingly poor research (Lester, 2000). If no one knows what an expert means, how does anyone know anything? Clarity and understanding contribute to the reduction of all violence, by reducing the amount of harm that is done to anyone.

Sensationalized cases arouse the community to vengeance. Yet, the most sensationalized cases from the past do not match in horror the tales in textbooks read today all around the world by scholars and students alike, and used for presentations. With all the experts' disparate epidemiologies, etiologies, and victimologies posited, how can we decide on a taxonomy? A partial answer is: focus on the killer, not the victim, in order to have fewer of each of them.

At the 2002 American Society of Criminology, internationally known criminologists will come together to discuss how we can extend Beccaria's vision of justice through theory and innovative research. The American Constitution was based on the same ideas as Beccaria's and those of the Enlightenment. But America developed in isolation and remains unique--a nation ruled by its members. The Framers forwent European-style institutions that control what citizens may do to each other. There is no social structure upon which to hang our morals. America is a *theory* of self-government, with no monolithic culture to command the best of each of us. America is only as just as those with the power to make and administer laws and punishments. Historically, this power was held by European Americans. We are a nation of *men*, not *laws*.

Our "golden rule" was to be orchestrated through the press, where all citizens would be enlightened by the truth. The press was intended to enhance self-regulation, illuminate the

difference between right and wrong and sound the alarm when liberty was threatened. The power to be just has lately been left to those who control policies that differentiate between groups, not actions, on the basis of extra-legal factors like poverty or race. When a group has no voice, and no expert explains that it is rarely the oppressed who commit the crimes we fear the most, justice is denied. Democracy only thrives when positivistic notions of a value-neutral science are supplanted by a healthy press, with its "marketplace of ideas."

Modern psychology supplies the empirical foundation for the Enlightenment. The reformists found the legitimate power to punish in laws that protected human life, but otherwise left men free. The measure of a crime is the harm done to society, the social injury it causes, "the example that it gives, the incitement to repeat it if it is not punished, the possibility of becoming widespread that it bears within it." Murder is "the reason . . . punishment appears" (Foucault, 1979, p. 92). Ideally, punishment will be seen to follow the crime; both are dramatized in the courts and published in an open book of laws that define the consequences of committing a crime as slightly greater than the benefits derived from it. While punishment is required, death is not.

The study of murder as it flows across the web has become a study of itself. When education *is* the Internet, experts and professors self-perpetuate. The World Wide Web offers serial murder as an academic major to students in nations that never heard the term, from experts who cannot define it. Now there are American-style killers from Peru to South Africa, citing American serial killers as their inspiration, with Americans to profile them, and serial murder web sites and distance learning to keep track of what they do. Experts fling ideas across the world, endangering other nations because they know less about murder than Tarde did in 1912.

The high profile case of "Jack the Ripper" produced widespread publicity at a time of increased literacy. In its wake, imitative murders spread rapidly throughout England. In Tarde's 1912 thesis: "Epidemics of crime follow the line of the telegraph" (in Berkowitz, 1980, p. 307). Berkowitz noted that the Chicago Police had similarly reported that Speck's 1966 murders, followed by Whitman's in Texas the next month, led to an "unusually sharp increase in homicides in Chicago." The contagion spread as "News of a sensationalized crime is followed by a sharp rise in criminal violence that continues to grow at an accelerating rate and then tapers off" (Bandura, 1973, p. 107). Such imitative murders are transitory in nature, picked up and then discarded or replaced by a new form. As a result, typologies can never enhance understanding of human behavior. The same is true of motives. Motives are now considered as incentives (much like Beccaria), aroused by symbolic models, provided by a culture that shapes behavior through sanctions. Figure 1, England's First Wave (1888-1925), shows the contagion following the unsolved Ripper case. Jenkins (1988, p. 5), noting England's first wave, reported that serial murder "activity" then declined until the mid-1970s, when, as in the U.S., it increased, as shown in Figure 2, England's Second Wave (1942-1985). Jenkins said the reason "for such concentrations [was] unknown, but obviously the imitation of celebrated cases may play some part." He reported England's success in curtailing two waves of serial murder, without comment.

The thesis here is, murder is deterred by its consequences. In 1983, England still had an effective justice system response. English serial murderers could expect apprehension within 4 years, a jury trial, a finding of sanity and at least one mandatory life (previously death) sentence (Jenkins, 1988). In contrast to England, a society that does not know who goes to prison or for

what reason, that does not clarify or justify its laws through the moralizing educative function of public trial and punishment, would be found to be "in total anomie" (Hawkins, 1971, p. 139).

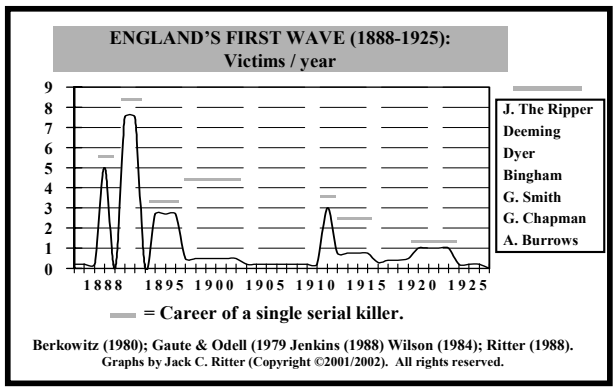

FIGURE 2
ENGLAND'S FIRST WAVE (1888-1925)

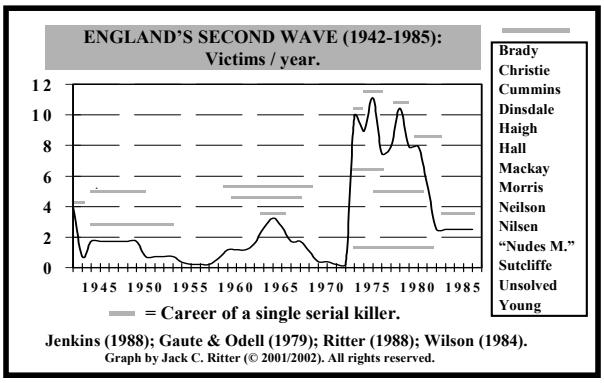

FIGURE 2
ENGLAND'S SECOND WAVE (1942-1985)

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NEGATIVE BINOMIAL REGRESSION IN THE ANALYSIS OF HOMICIDE DATA

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A recurring issue in the analysis of aggregate homicide data has to do with the variation in the frequency of homicide across geographical units. For example, if data were aggregated at the county level, some counties would have a high incidence of homicide, but for many counties, homicide would be a relatively rare event. This makes the use of rates and OLS regression techniques problematic. A relatively low number of homicides occurring in a sparsely-populated area may result in a comparatively higher rate that does not accurately reflect the actual incidence of homicide in that location.

When OLS regression is used in the analysis of some types of disaggregated homicide data, methodological complications could result. First of all, both the data and the error distribution of the error could be skewed, violating the OLS regression assumption of normality. Using the occurrence of elderly homicide in the United States from 1989-1991 as an example (see Weaver, Martin, & Petee, in press), one can see from Figure 1 below that the data are extremely skewed, with many counties reporting no homicides for the time period studied. Second, variation in population across geographic units could violate the OLS assumption regarding the homogeneity of error variance. Figure 2 shows the degree of heterogeneity in error variance for the elderly homicide data.

FIGURE 1. Distribution of Elderly Homicide in U.S. Counties: 1989-1991

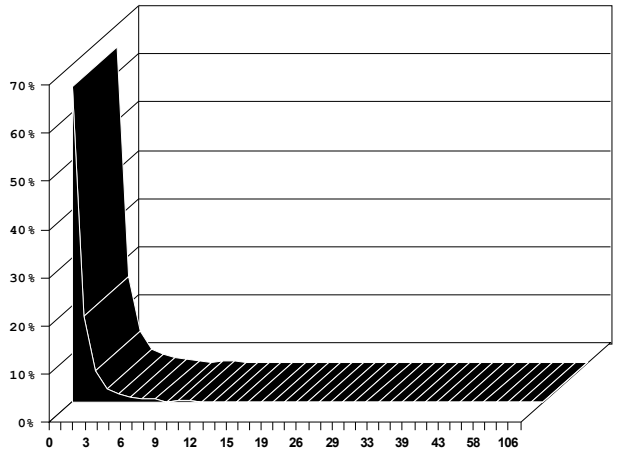
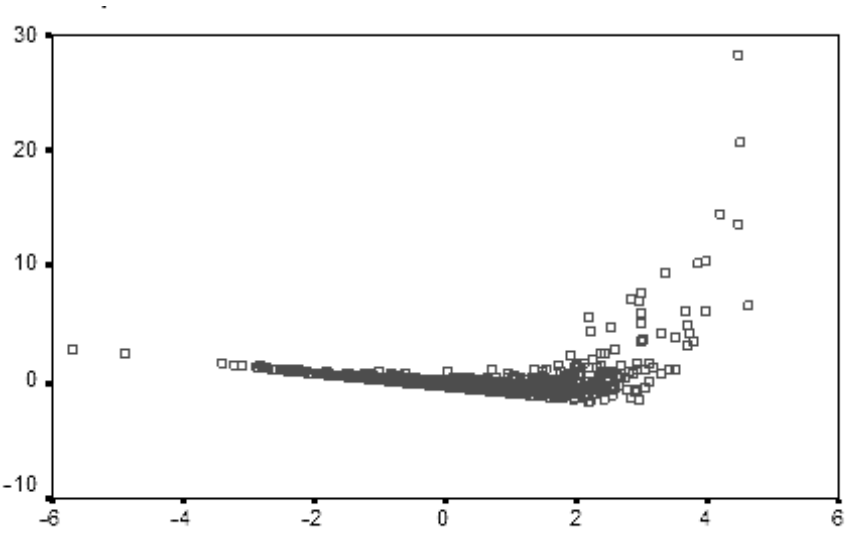


FIGURE 2. Scatterplot of Error Variance for Elderly Homicide: 1989-1991



One solution for these methodological problems is to use count data instead of rates, and to employ a variation of the Poisson distribution--negative binomial regression--to model the data. Poisson techniques are designed for the use of count data, and do not assume the homogeneity of error variance. The negative binomial variant is better suited for the overdispersion of the difference between fitted and observed data, which would otherwise affect standard errors and t-statistics in the model. The formula is as follows:

$$P(Y_i = y_i) = \frac{\Gamma(y_i + \Phi)}{y_i!\,\Gamma(\Phi)} \frac{\Phi^{\Phi}\,\lambda_i^{y_i}}{(\Phi + \lambda_i)^{\Phi - y_i}}$$

where: Γ = gamma function – a continuous version of the factorial function
Φ = reciprocal of the residual variance of underlying mean counts[1]

Table 1 below shows the OLS regression estimates for the elderly homicide data. As can be seen from these data, three of the variables in the model failed to achieve statistical significance. Moreover, several of the coefficients are not in the expected direction. When negative binomial regression is used instead of OLS (see Table 2), the outcome is dramatically different. All of the variables in the negative binomial model were statistically significant and in the expected direction.

[1] See Osgood (2000) for a more detailed discussion of negative binomial regression.

TABLE 1. O.L.S. Regression Estimates for Elderly Homicide

	Coefficient	Std. Error	t
Log of Population	1.847	.126	14.679*
Log of Density	- .026	.104	- .250
Percent of Population 65 +	.066	.022	2.985*
Percent Black	.054	.011	4.910*
Percent Poverty	.043	.018	2.396*
GINI Index	.141	.030	4.772*
Percent Single Parent Families	-.002	.026	-.089
Conservative Protestant	-.010	.007	-1.457
Adherents	.018	.005	3.430*
Percent Born in the South	-.016	.004	-4.193*
Percent of Population 40-59	.216	.044	4.926*
CONSTANT	-30.171		
R2	.241		

* $p < .05$

TABLE 2. Negative Binomial Regression Estimates for Elderly Homicide

	Coefficient	Std. Error	z
Log of Population	1.143	.029	38.983*
Log of Density	- .070	.028	-2 .250*
Percent of Population 65 +	.043	.006	7.075*
Percent Black	.015	.003	4.852*
Percent Poverty	.016	.006	2.814*
GINI Index	.021	.010	2.173*
Percent Single Parent Families	.019	.007	2.484*
Conservative Protestant	.010	.002	4.487*
Adherents	-.004	.002	- 2.571*
Percent Born in the South	.004	.001	3.605*
Percent of Population 40-59	- .035	.016	2.269*
CONSTANT	-14.815		
Pseudo R2	.319		

* $p < .05$

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Weaver, G. S., Martin, C. D., & Petee, T. A. (in press). Culture, context, and homicide of the elderly. *Sociological Inquiry*.

APPENDICES

AGENDA

Homicide Research Working Group
2001 Annual Meeting
University of Central Florida
Orlando, Florida

Friday, June 22:

8:30 AM – 4:00 PM **Pre-Conference Workshop on NIBRS Data**

Coordinated by: John Jarvis, Federal Bureau of Investigation; and Tom Petee, Auburn University

Location: UCF Student Union

5:00 PM – 6:00 PM **Welcome and Opening Social Hour**

Derral Cheatwood

6:00 PM – 7:30 PM **Opening Session - Domestic Violence Fatality Review Teams: One Team's Experience**

Chair: Jana Jasinski
Recorder: Wendy Regoeczi

7:30 PM – 7:45 PM **Transfer of Editorship, Homicide Studies**

Chair: Dwayne Smith

7:45 PM **Informal Dinner Groups**

Saturday, June 23:

Location: UCF Student Union

8:00 AM – 8:30 PM **Breakfast**

8:30 AM – 9:00 AM **Introductions of Workshop Participants**

Derral Cheatwood

9:00 AM – 11:00 AM **Session #1 – Homicide Weapon Research**

Chair: Lois Mock and Paul H. Blackman
Presenters:

Paul H. Blackman	"*A Primer for Homicide Researchers on Trends in Firearms and Their Availability"*
Roland Chilton	*"Chicago Historical Data, 1870-1930 and 1965-1990: Victims, Offenders and the Weapons Used"*
Vance McLaughlin	*"Instrumentality and Wounds in Civilian versus Civilian Homicides in Savannah: 1896 to 1903 & 1986 to 1993"*
Richard Rosenfeld	*"Firearm Indicators and the Homicide Decline"*

Recorder: Joe Shulka

11:00 AM – 11:15 PM **Break**

11:15 AM - 12:15 PM **Session #2 - Issues in Data Collection and Measurement**

Chair: Marc Riedel

Presenters:

Marc Riedel	*"Estimating Missing Data in Homicide Victim/Offender Relationships"*
Jason C. Van Court and Roger B. Trent	"*Using Linked Death Records and Supplemental Homicide Reports to Describe Violent Injuries in California"*

Recorder: Steve Roth

12:15 PM – 1:45 PM **Business Lunch #1**

Led by: Derral Cheatwood

Recorder: HRWG Secretary

1:45 PM – 2:00 PM **Break**

2:00 PM – 3:00 PM **Session #3 – Poster/Display**

Chair: Becky Block

Presenters:

Catherine Barber with Deborah Azrael, David Hemenway & Jenny Hochstadt	*"Piloting a National Reporting System for Violent Deaths"*
Mallory O'Brien with Stephen Hargarten, Carrie Nile, Richard Withers & Evelyn Kuhn	*"Linking the Gun with the Death: The Who, When and Where of the Gun's First Purchase"*
James Black and Nicole Cravens	*"Framing Homicide: Murder-for-hire Films"*
Paul H. Blackman	*"National Rifle Association"*
Richard Block, Roland Chilton & Greg Weaver	*"Chicago Historical Homicide Project"*
Chip Coldren	*"Strategic Approaches to Community Safety Initiative: Partnering Researchers with Practitioners to Reduce Violent Crime Fatalities in 10 U.S. Cities"*
Detis Duhart & Michael Rand	*"Bureau of Justice Statistics"*
Arlen Egley, Jr.	*"National Youth Gang Center Gang Survey: Meaning, Measurement, and Application of the Results"*
Kara Emory	*"NIJ Resources and Research on Lethal and Non-Lethal Violence"*
Orest Fedorowych	*"Statistics Canada Homicide Data"*

Session #3 – Poster/Display (Continued)

Caterina Gouvis	*"The Demography and Geography of Homicide in the D.C. Metropolitan Area"*
John Jarvis With Arthur Westveer	*"Homicidal Poisonings in the United States: An Analysis of Cases Reported from 1990-1999"*
E. Lynn Jenkins	*"Workplace Violence Data and Research at NIOSH"*
Timothy Kephart	*"Means of Communication: Symbolic Messages in Gang Graffiti"*
Christina Lanier & Lin Huff-Corzine	*"Not All Fun in the Sun: An Analysis of Homicide in Florida"*
Kaye Marz & Wendell Willacy	*"Resources of ICPSR and the National Archive of Criminal Justice Data"*
James Noonan	*"Sources on Homicide Research Available from the Federal Bureau of Investigation"*
Elena Quintana	*"Chicago Project for Violence Prevention"*
Barrie Ritter	*"Life Histories of Serial Murderers"*
Lisa Walbolt	*"JRSA's Incident-Based Reporting Resource Center Web Page"*
Greg Weaver & Tom Petee	*"Negative Binomial Regression in Analysis of Homicide Data"*
TBA	*"HELP"*

3:00 PM – 3:15 PM **Break**

3:15 PM – 4:15 PM **Session #4 – Homicide Victimization over the Life Course**

Chair: John Jarvis

Presenters:

John Jarvis & Mark Safarik — *"Sexual Homicide of the Elderly"*

Frans Koenraadt, Willem Pompe — *"Clinical and Criminological Issues of Neonaticide"*

Recorder: Jenny Mouzos

4:15 PM – 5:00 PM **Session #3 – Poster/Display (Continued)**

6:00 PM **Social Hour**

In honor of Dwayne Smith, founding editor of *Homicide Studies*
Held pool-side at Lin Huff-Corzine's and Jay Corzine's house.

Sunday, June 24:

Location: UCF Student Union

8:00 AM – 8:30 AM **Breakfast**

8:30 AM – 10:00 AM **Session #5 – Female Homicide Offenders**

Chair: Todd Shackelford

Presenters:

Jenny Mouzos — *"Women as Offenders of Homicide"*

Todd Shackelford — *"Young Women Are Over-Represented Among Perpetrators of Husband-Killing"*

Recorder: Christina Lanier

10:00 AM – 10:15 AM **Break**

10:15 AM – 11:45 AM **Session #6 – Directions and Developments in Theory Testing on Homicide**

Chair: Chris Rasche

Presenters:

Gary Jensen	*"Religion and Homicide: Unraveling Durkheim's Mystery"*
Lin Huff-Corzine, Greg Weaver, Jay Corzine & Tom Petee	*"The Importance of Disaggregation in Specifying the Southern Subculture of Violence"*

Recorder: Greg Weaver

12:15 PM – 1:15 PM **Business Lunch #2**

Led by: Derral Cheatwood

Recorder: HRWG Secretary

1:15 PM – 1:30 PM **Break**

1:30 PM – 3:00 PM **Session # 7 – Views on Homicides Involving Under-researched Groups**

Chair: Dallas S. Drake

Presenters:

Dallas S. Drake	*"Data Set Construction in Homosexual Homicide Cases" Shedding the Political Issue of Motive"*
Damon Muller	*"Scenario-based Typologies of Femicide in Victoria, Australia"*
Will Jarvis	*"Homicide Cases from the Perspective of a Prosecutor"*

Recorder: Dick Block

3:00 PM – 3:30 PM **Ice Cream Break**

3:30 PM – 4:30 PM **Session # 8 – Femicide and Intimate Partner Homicide**

Chair: Jacquelyn Campbell

Presenters:

Viviana A. Weekes-Shackelford & Todd Shackelford — *"Wife-Killings Committed in the Context of a Lovers' Triangle"*

Jacquelyn Campbell, Jane Koziol-McLain, Daniel Webster, Doris Campbell & Faye Gary — *"Reconciling Actual and Attempting Femicide Regression Models: Implications for Prevention"*

Recorder: Vance McLaughlin

5:30 PM **Informal Dinner**

Monday, June 25:

Location: Holiday Inn

8:00 AM – 9:00 AM **Breakfast and Committee Meetings**

9:00 AM – 10:00 AM **Special Session**

Chair: Avianca Hansen

Recorder: Laura Lund

10:15 AM – 12:30 PM **Special Session**

Chair: Tosha Dupras

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