State of Ohio

Office of Criminal Justice Services

CRIME IN OHIO:
ANALYSES OF OIBRS DATA

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**A Report to the State of Ohio's
Office of Criminal Justice Services**

By

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January 19, 2006

EXECUTIVE SUMMARY

Our primary objective in this study was to develop techniques to explore crime incident data sent by Ohio police agencies to the Ohio Office of Criminal Justice Services under the Ohio Incident-Based Reporting System (OIBRS). OIBRS crime data are more complete than the crime data collected by the FBI since 1930, as part of its Uniform Crime Reporting (UCR) program. The categories in the UCR program are too broad to provide an indication of what might have caused the crime to occur or what type of control prevention strategy might be most useful on the part of the police or other organizations, objectives that may be achievable using OIBRS. This report is an attempt to see to what extent OIBRS data can shed light in these areas.

Although we studied the data for only three cities, we were able to develop techniques to investigate patterns of criminality for a range of personal crimes (homicides, assaults, and domestic violence). We also conducted a preliminary analysis of larcenies, the most frequent property crime.

Even with this small number of cities, we were able to find useful patterns in the data. For example, from Figure 5 it appears that unsolved non-domestic homicides were more likely to involve older (over 30) victims, and killings of young adults were more likely to have known suspects and occur in the late summer. These patterns are, of course, very preliminary, since they are based only on homicides in three Ohio cities. With a larger number of cities in the sample, we would be able to investigate the relationship between method used (e.g., gun vs. knife vs. suffocation) and age of victims and suspects.

Another benefit of using OIBRS data deals with how crimes are categorized in the UCR. Domestic violence falls into a number of UCR categories that obscure their true number. Some may have been homicides, others simple or aggravated assaults, and yet others might have been classified as other types of crime. That is, rather than look at domestic homicide as within the UCR category "homicide," it can be looked upon as the fatal outcome of an OIBRS-generated analysis of "domestic violence." When viewed in this manner, one can look at how often domestic violence incidents result in death, major or superficial injury (as part of the UCR category "aggravated assault"), or no injury. In addition, when considering the ages of victims and suspects, domestic violence incidents can be separated into partner-partner, child-adult, adult-child, and other incidents, and the characteristics and extent of injury can be investigated separately.

We refer the reader to the text below for insights into the types and numbers of crimes. Here, we point to several key findings: (1) most incidents include just a single crime, and one victim and one suspect; (2) a large portion of domestic violence and other assault incidents involve no obvious physical injury; and (3) homicides are unique from the other violent crimes examined here in that they involve more unknown victim-suspect relationships, more male victims, and are equally likely to occur in public and residential locations.

Aside from providing insight into the character of different types of crime, our analyses suggest additional ways in which OIBRS data are useful. First, they can be used in furtherance of problem-oriented policing, which deals with bringing public resources other than just the police to bear on crime. Second, by tracking these patterns over time,

the efficacy of different policies (e.g., increasing the frequency of arresting batterers or the number of domestic violence shelters) can be ascertained.

The utility of OIBRS data can be enhanced considerably with the incorporation of additional information. Circumstances surrounding a homicide are regularly recorded in Supplementary Homicide Reports (SHR); they would also be helpful in OIBRS, and data entry fields already exist for this. In addition, inclusion of the actual address would be of benefit, since analyses could then determine the extent of clustering and could include neighborhood characteristics.

CRIME IN OHIO: ANALYSES OF OIBRS DATA

FINAL REPORT TO OCJS

I.   Introduction

In 2004, the Office of Criminal Justice Services (OCJS) granted funds to Ohio

State University's Criminal Justice Research Center (CJRC) to examine Ohio Incident-

Based Reporting System (OIBRS) data. The grant provided funding for one year, during

which we were to analyze data for three cities, which we call Bigcity, Middletown, and

Smallville.[1] The purpose of these analyses was to develop more refined categories of

crime for these jurisdictions and for different types of policing contexts, in order to

ultimately demonstrate the utility of these data to reporting agencies. Given the time

frame for which we received funds, we proposed to do the following: develop templates

for extracting the data from original OIBRS databases, conduct descriptive analyses of

the data, and establish patterns within subtypes of crime categories so that we could

provide reports to law enforcement planning and management agencies. We also

proposed to associate crime categories to geographic place characteristics; however, the

complexity of the data management and extraction procedures prevented us from

accomplishing this during this phase of the grant. The following report details our

progress with regard to these goals.

We begin by discussing our accomplishments to date (section II below). We then

consider the advantages of using the OIBRS data (section III). In sections IV-VIII we

present the results of our descriptive analyses of select crimes (homicide, domestic

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[1] Since this was a special project just to test the concept of using NIBRS data, the cities were promised
anonymity.

violence, assault, sexual assault, and larceny, respectively). We follow these analyses

with a section that documents the problems and issues we encountered when using the

OIBRS data (section IX), and then summarize our overall findings (section X).

II.   Accomplishments

During this grant we have taken important steps toward developing user-friendly information for reporting agencies and analyzing more refined categories of crime in order to examine patterns that may be useful to law enforcement with respect to planning and managing crime. We also have created documentation of any problems or issues encountered along the way, to aid future use of OIBRS data. We discuss our specific achievements below.

Developing Templates for Extracting the Data. Perhaps the most important achievement to date is the development of a system for extracting the original data from Microsoft Access. This system allows one to create queries—or new data files—that link individual data segments, and thus allows one to engage in broader analytical endeavors. The creation of these queries—as well as the documentation providing instructions for creating them, which we include in an appendix—is significant because it permits researchers and law enforcement to benefit from the complex relational structure of the OIBRS data. Typically, prior research has presented basic counts of victims, arrestees, offenses, suspects, or property items per incident because these data segments are separate. However, the production of a query allows one to *link* these to any or all segments. As an example, the linkage of the victim segment with the offense segment allows one to examine the types of injuries that victims receive, by type of offense. Another example of such a linkage is the ability to examine victim injury type by type of weapon used. The original structure of the data does not permit such analyses. The value of this query process will be even more evident as we provide more detailed descriptive statistics in subsequent sections of this report.

The instructional document contains step-by-step procedures for creating the queries used for our descriptive analyses (discussed below). This document will enable law enforcement officials to create their own queries that link separate data segments, permitting them to perform more complex analyses. It is important to note that there are different instructional steps to follow for different types of queries; the query that one creates depends on the *characteristics that are of interest* to the researcher. For example, if one were interested in looking only at the relationships between the victim(s) and suspect(s) for each incident, without regard to the offenses, then one would stop at step 10 in the instructional document. Likewise, if one were interested in characteristics of victims, suspects, and offenses, then one would follow the document through step 16. If one were interested in characteristics of the victim, suspect, offense, and property items, then one would follow the document through to the final step, step 20. These steps have been examined for ease of use. A graduate student who had never worked with OIBRS data, but who is computer-literate, tested the ease of replication of the query creation. We are confident that this process should generally be replicable by other computer-literate personnel.

Descriptive Reports of Crime in Three Ohio Cities. We received from OCJS OIBRS data for 2003 for the three Ohio cities, Bigcity, Middletown, and Smallville. Bigcity is a large city in western Ohio with a population around 150,000. Middletown is a smaller city in central Ohio with a population around 35,000. Smallville is the smallest of the three cities, located in east-central Ohio with a population around 25,000. Focusing on these three cities permitted us to develop general methods, useful for cities of all sizes, without getting bogged down with too much data. It also allowed us to

develop a template for extracting the data, as well as to produce general descriptive reports on crime patterns. Our report focuses on four specific crimes of violence: non-intimate homicide, domestic violence (including intrafamily and intimate partner homicide), assault, and sexual assault, as well as a preliminary study of the larceny data.

III. Advantages of Using OIBRS Data

OIBRS contains an order of magnitude more information about crime incidents than does the UCR. The detailed nature of OIBRS data permit researchers to go beyond the seven categories of UCR crime counts and look at crime analysis through a different lens. Figure 0 depicts the data elements and relationships in the National Incident-Based Reporting System, from which OIBRS is derived.
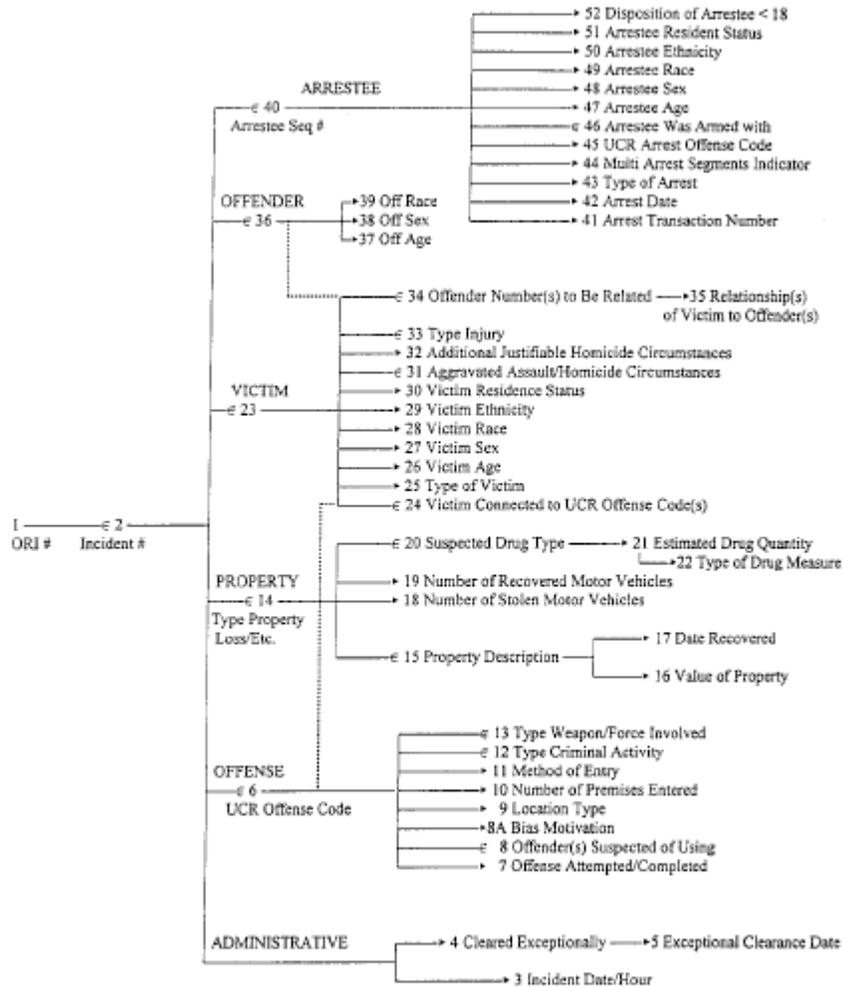
Figure 0. The structure of NIBRS data[2]

[2] Taken from Yoshio Akiyama and James Nolan, "Methods for Understanding and Analyzing NIBRS Data." *Journal of Quantitative Criminology*, Vol. 15, No. 2, 1999, pp. 225-238.

To explain the difference between the UCR and OIBRS, we can use the following example. Homicide is a single crime in the UCR, but it can also be looked at as the fatal outcome of different types of crimes – intimate partner homicide as the fatal outcome of domestic violence, infanticide as the fatal outcome of child abuse, and similar situations with respect to assaults, sex crimes, robberies, etc. This is especially helpful in the analysis of personal crime, where multiple crimes may be masked because of the FBI's "hierarchy rule." This rule, used in the classification of UCR data, refers to the fact that if more than one crime occurs in an incident – say, a robbery and car theft – only the more serious, the robbery, is counted. This rule was instituted to avoid double-counting a crime; however, it also masks the nature of the incident. On the other hand, OIBRS allows for multiple crimes to be part of the same incident.

Because of the greater flexibility inherent in the OIBRS data, an analyst is now able to classify incidents according to all its aspects instead of only the most serious. We have taken this approach in our analysis of four different crimes – non-domestic homicide, domestic violence, sexual assaults, and other assaults. In addition, we conducted a preliminary analysis of larceny. They are described in the following sections.

IV.   Non-Domestic Homicide

We chose to examine homicide because this is the most serious offense and, therefore, we assumed that homicides would have the most complete data (at least for the victim, and if an arrest was made, for the suspect as well).

Below we provide descriptive information for homicides occurring in Smallville and Bigcity,[3] as well as figures that visually illustrate certain data elements. Specifically, these visualizations represent crosstabulations of 1) location by crime, 2) location by relationship, 3) relationship by arrest, and 4) weapon type by relationship for the homicide incidents in the two cities.

Total Incidents. There were 32 incidents involving homicides in these two cities in 2003, none of which were domestic homicides. Most (n=28, or 87.5%) were in Bigcity, and the remainder (n=4, or 12.5%) were in Smallville.

Arrests. Only one-third of the homicide incidents (n=11) resulted in an arrest.[4] As might be expected, a breakdown by relationship type (Figure 1) reveals that when the offender is unknown (UU) there was rarely an arrest.[5]

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[3] The third city, Middletown, had no homicides reported for 2003.
[4] There were a few cases with multiple perpetrators in which not all suspects were arrested. If at least one of the suspects from an incident was arrested, then we considered this case an arrest.
[5] Note that arrests were made even when the relationship was "unknown" (UU). This might be due to the fact that when the data were originally collected the relationship was unknown. The other codes are acquaintance (AQ), stranger (ST), and other known (OK).

Figure 1. Relationship by Arrest (Homicides)
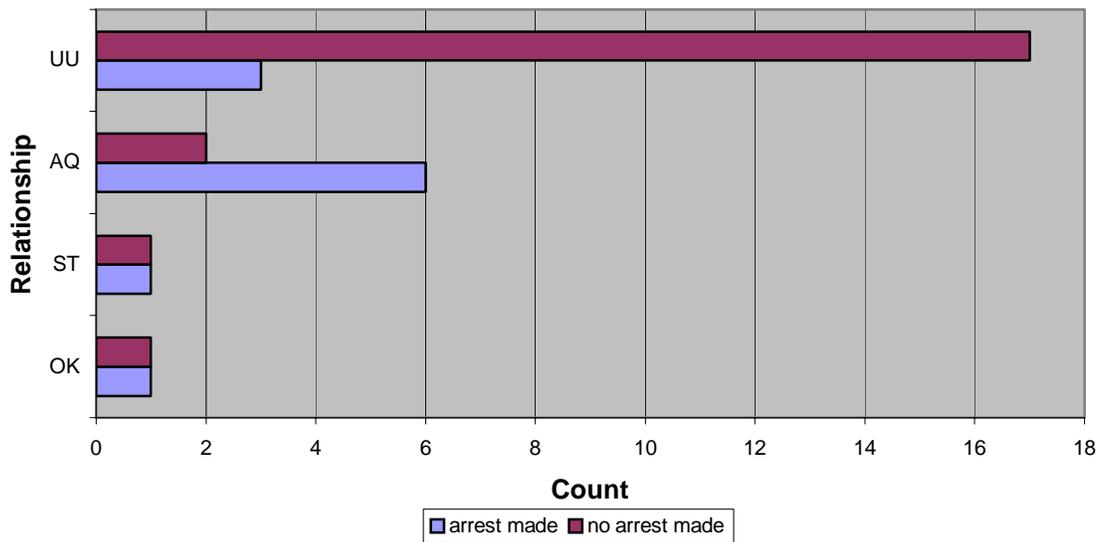
Crimes and Victims. The majority of incidents (n=25, or 78%) involved only one crime: murder. However, some incidents involved other major crimes. Specifically, five incidents involved murder and one other crime: two incidents involved a murder and an assault; two incidents involved murder and robbery; and one incident involved murder and trespassing. One incident involved three crimes: murder, robbery, and tampering with evidence. Finally, one incident involved four crimes: murder, robbery, having weapons while under disability, and kidnapping.

All incidents involved only one *murder* victim, although a few incidents involved multiple victims of other crimes: One incident involved a second person victim who was a victim of aggravated robbery and one incident involved a second person victim who was a victim of felonious assault. One incident involved five person victims, but four of these were victims of only aggravated robbery and/or kidnapping. Two incidents

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involved non-person victims/crimes, one a business (trespassing against a business) and the other society (having weapons while on disability).

Suspects. Twenty-five of the 32 cases involved only one suspect; five incidents involved two suspects; one incident involved three suspects; and one incident involved four suspects. Of the 25 single-suspect incidents, 23 of these also involved single victims and two involved two victims.

Weapons. Roughly half of the incidents (n=17) involved the use of some type of gun (handgun, shotgun, or other firearm), while 9 incidents had unknown weapon types.[6] One incident involved a knife, two involved asphyxiation, and the remaining three incidents involved some "other" type of weapon. Figure 2 shows the breakdown of weapons by relationship between the victim and suspect. In the incident in which a knife was the weapon, the victim was an acquaintance of the perpetrator. In the majority of cases, however, the relationship was unknown.

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[6] Since the crimes are classified as homicides and not deaths under suspicious circumstances, it is unclear why no weapon is specified. It may again be a consequence of how the data were collected.

Figure 2. Homicide Weapon by Relationship
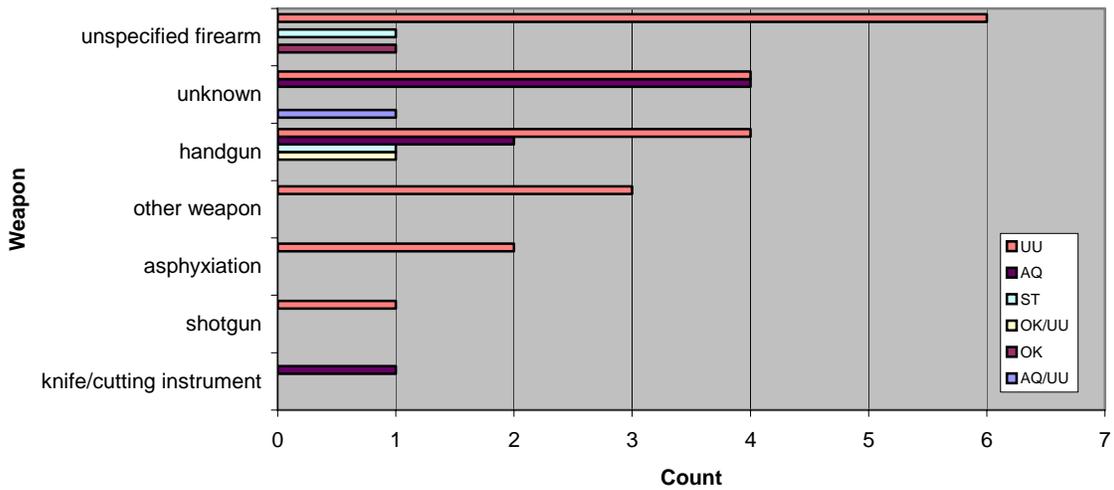
Location. Thirteen of the homicides took place in a private home or other residential setting, while two took place near homes (one in a garage/shed, the other in a yard). Ten homicides took place on the street, and two took place in other public settings (one in a parking lot, another in a retail store). One homicide took place in the woods or a field, and the remaining four took place in "other" locations (see Figure 3).

Figure 3. Homicide Location by Crime

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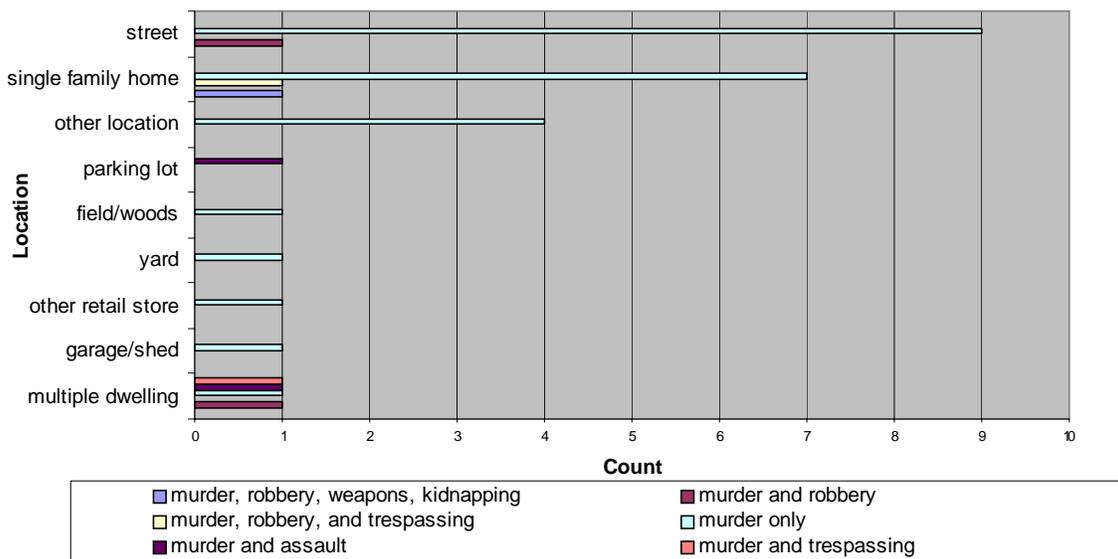
Relationship. The majority of homicides (n=20) involved scenarios in which the relationship between victim and suspect is unknown. Two occurred to victims who were strangers to their suspect(s). One victim was "otherwise known" to the suspect(s), and seven victims were acquaintances of the suspect(s). Finally, there were two homicide incidents involving two relationship types because there were two suspects: in the first of these incidents, one victim was an acquaintance of one suspect and was unknown to the second suspect; in the second such incident, one victim was "otherwise known" to the first suspect and was unknown to the second suspect. Figure 4 is a visual representation of the relationships by location.

Figure 4. Homicide Location by Relationship

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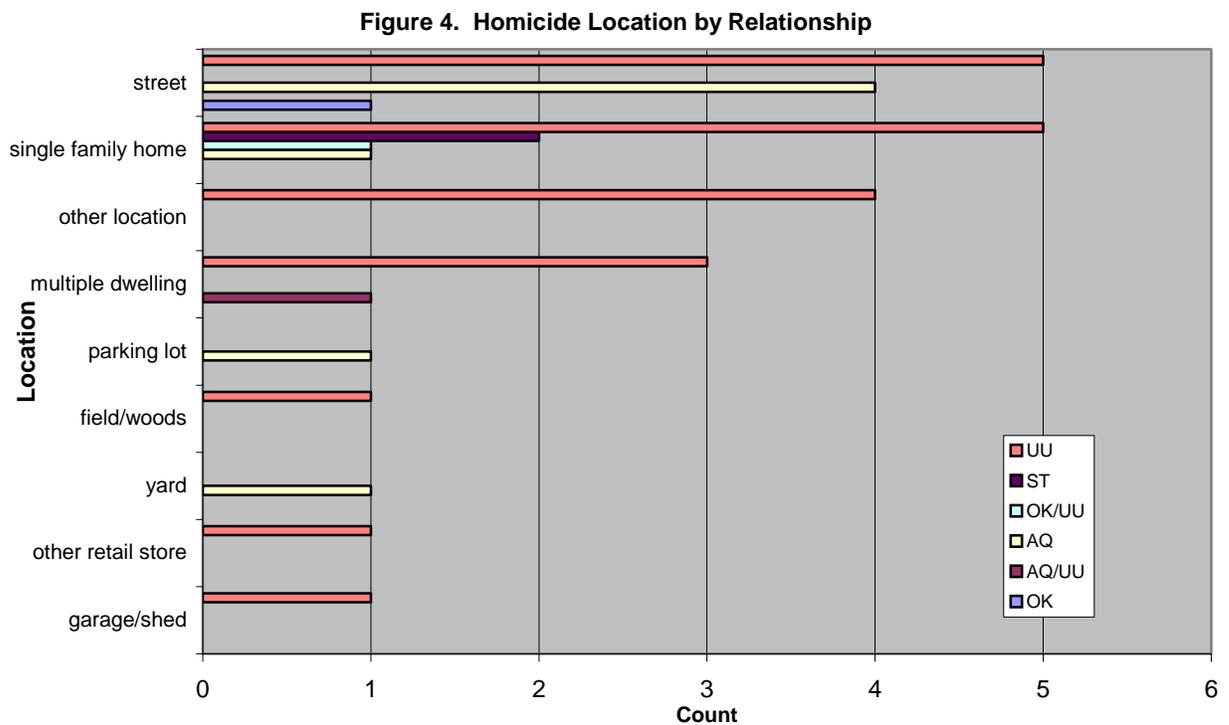
Additional Analyses. We also undertook analyses of the timing and age relationships in homicide incidents to see if additional insights could be obtained from them. Even though the number of incidents was small (32), we were able to show some patterning of events.

Shown below (Figure 5) is a first attempt to look at the various time-related aspects of homicide incidents. The horizontal axis gives the date of the event. The ages are given in the vertical axis: ages of male victims are indicated by square markers and ages of female victims by circles; diamond markers indicate male suspects and triangle markers indicate female suspects; and brown markers indicate African-American victims and suspects, and light tan boxes indicate victims and suspects of another race/ethnicity. If the victim's age was unknown, it is indicated as a zero age; if the suspect's age was unknown, it is omitted from the graph.

Lines link suspects to victims. A red line indicates that a specific victim was killed by a specific suspect; a green line indicates that a different crime (but part of the incident) links the suspect and victim. Thus, the leftmost box indicates that a 70-year-old African-American male was killed by an unknown suspect on February 3rd, 2003. At the other end of the graph, we see that a 27-year-old male killed a 32-year-old male, both of whom were African-American.

As can be seen, there were more incidents in the spring and late summer-early fall than at other times. Incidents with known suspects seemed to occur more frequently when the victims were in their 20s and early 30s than when the victims were over 30 years of age.

Figure 5. Non-Domestic Homicides by Ages and Dates
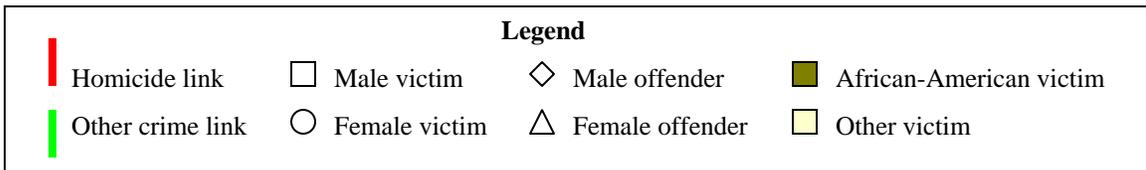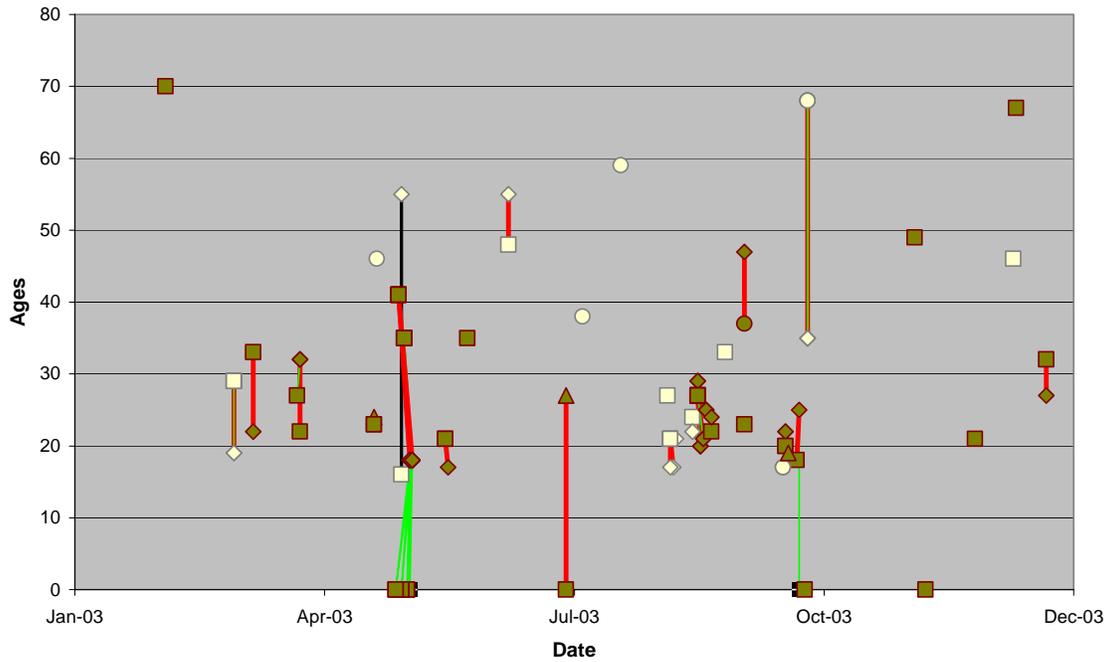
V. Domestic Violence

We examined domestic violence incidents in these three cities because family violence is of central concern to the policy community and because these types of incidents often involve ambiguous situations for policing efforts. The decision rules that we used to create the domestic violence file were based on the work of Thompson, Saltzman, and Bibel.[7] They noted that there are eight possible offenses for domestic violence incidents: murder, forcible rape, forcible sodomy, sexual assault with an object, forcible fondling, aggravated assault, simple assault, and intimidation. We used the same

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[7] Martie P. Thompson, Linda E. Saltzman, and Daniel Bibel (1999). "Applying NIBRS Data to the Study of Intimate Partner Violence: Massachusetts as a Case Study." *Journal of Quantitative Criminology*, Vol. 15, No. 2, pp. 163-180.

general categories, basing our selection on the equivalent categories in the OIBRS

codebook. We looked at 14 possible relationship types that characterize "domestic":

spouse, common-law spouse, boyfriend/girlfriend, ex-spouse, homosexual partner,

parent, stepparent, grandparent, child, stepchild, child of boyfriend/girlfriend, grandchild,

sibling, and stepsibling.[8] The report below, as with the homicide report, includes

descriptive statistics as well as visual representations of the data patterns.

Incidents and Crimes. There were a total of 2,703 incidents involving domestic

violence offenses in Bigcity, Middletown, and Smallville in 2003—2,008 incidents in

Bigcity, 400 in Middletown, and 295 in Smallville. Among these incidents, less than 1%

were murders while 74.3% of the total offenses were classified as "domestic violence."[9]

The next largest categories were assault[10] (12.6%) and endangering children, which falls

under the "assault" category of OIBRS codes (7.4%).[11] Rapes and other sex crimes

combined comprised 2% of the domestic violence offenses.

Victims and Suspects. In the 2,703 domestic violence incidents, there were 3,289

victims and 2,910 suspects. Most domestic violence incidents were single victim-single

suspect incidents (81.4%) and the next largest grouping was single suspect-multiple

victims (11.9%). There were 1.6% that involved a single victim and multiple suspects

and another 5.1% with multiple victims and multiple suspects (most of which were cases

in which two parties reported that they were victimized by each other). When broken

down by city, all three places had more single victim-single suspect incidents than any

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[8] Cases in which suspects were in-laws or "other family members" of the victims were treated as more distant relatives and excluded. However in hindsight, the logic of this exclusion is problematic.

[9] Unfortunately, the offense code for domestic violence (2919.25) can comprise aggravated assault, simple assault, or intimidation (see codebook), and thus, we cannot give a percentage breakdown of these three distinctions.

[10] This category of assault includes felonious assault, assault, negligent assault, and aggravated assault.

[11] See Appendix A of the OIBRS codebook, offense code 2919.22.

other incident type, and all three places had fewer single victim-multiple suspect scenarios than any other type. However, both Bigcity and Smallville had more single suspect-multiple victim incidents than multiple-on-multiple incidents, while Middletown had more multiple-on-multiple incidents than single suspect-multiple victim incidents.

Race. As one can see in Figure 6, most incidents involved domestic violence offenses being perpetrated against a person of the same race as the suspect (85%), while 8.9% of incidents were inter-racial and 6.1% of cases involved multiple suspects and/or victims with both intra- and inter-racial involvement. Since we did not have data on the frequency of inter- and intra-racial households, we could not draw any conclusions about the relative frequency of these incidents by racial characteristics of the household.

Figure 6. Racial Characteristics of Domestic Violence Incidents
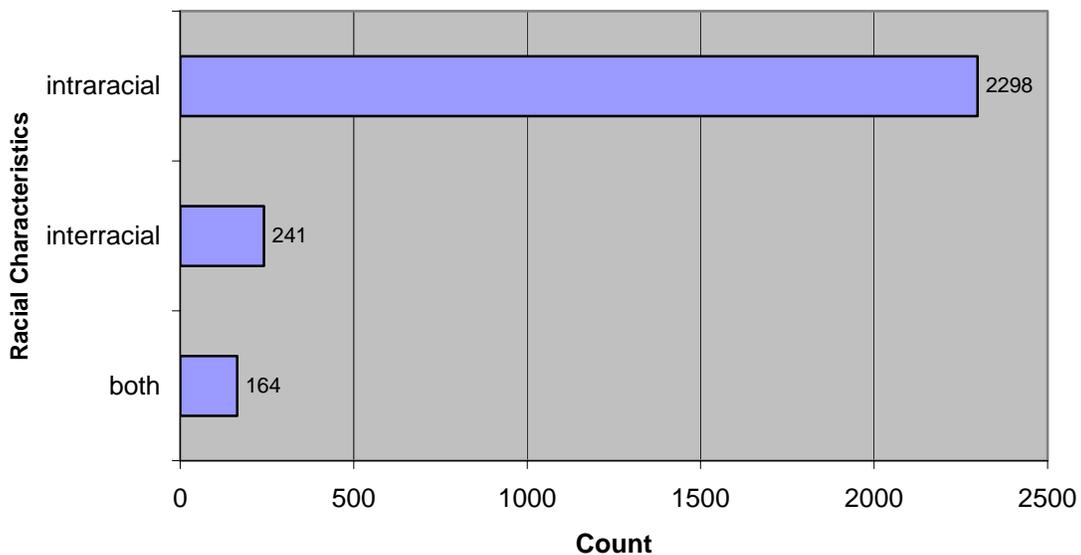
Age Difference. Although domestic violence usually refers to violence between domestic partners, it can also refer to intergenerational violence. One way to tease apart the difference between these two phenomena is to look at age differences between

victims and suspects (Figure 7). In 43.1% of the incidents, the age difference between

the victim and suspect was from 0-4 years apart. One-fifth of the cases involved victims

and suspects who were 5-9 years apart in age, and another one-fifth of cases involved an

age difference of 20 or more years. A smaller percentage of cases involved persons who

were 10-19 years apart in age (13.8%), while in a very small percentage of cases (3.4%),

the age of the victim or suspect was unknown.

**Figure 7. Age difference between victim and suspect
(Domestic Violence Incidents)**
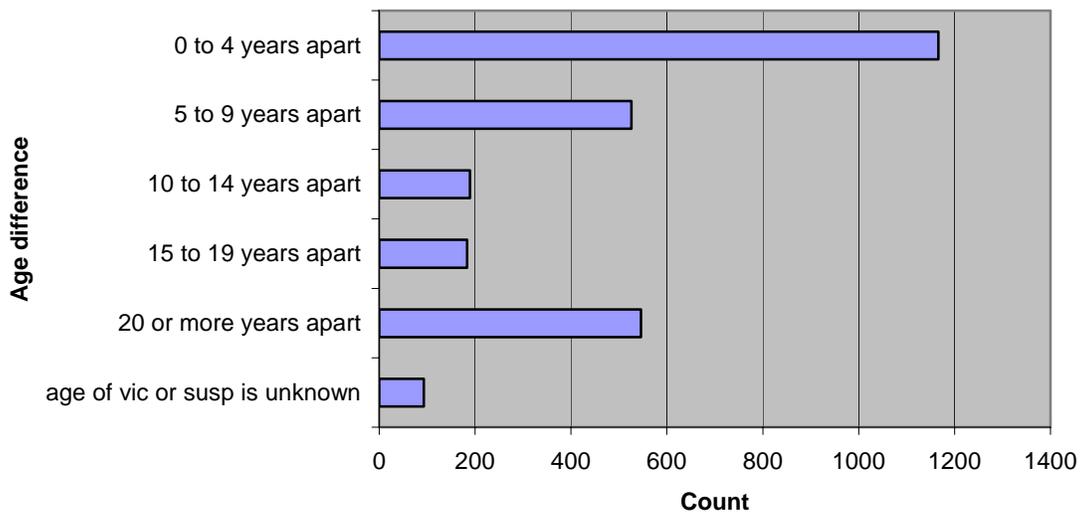
Relationships. The large number of incidents involving persons who were 20 or

more years apart in age prompted us to look at the relationships among the cases (Figure

8). We found that within this age category, the majority of cases were those in which a

child was the victim of the violence, followed by cases in which a parent was the victim.

Fewer cases involved non-family victims (e.g., acquaintances, boyfriends, girlfriends),

and very few incidents involved distant family victims. In contrast, within the closest age

category (where the age difference between the victim and suspect was zero to four

years), most of the relationships included partners, followed by siblings.

Figure 8. Age Difference between Victim and Suspect by Relationship (DV Cases)
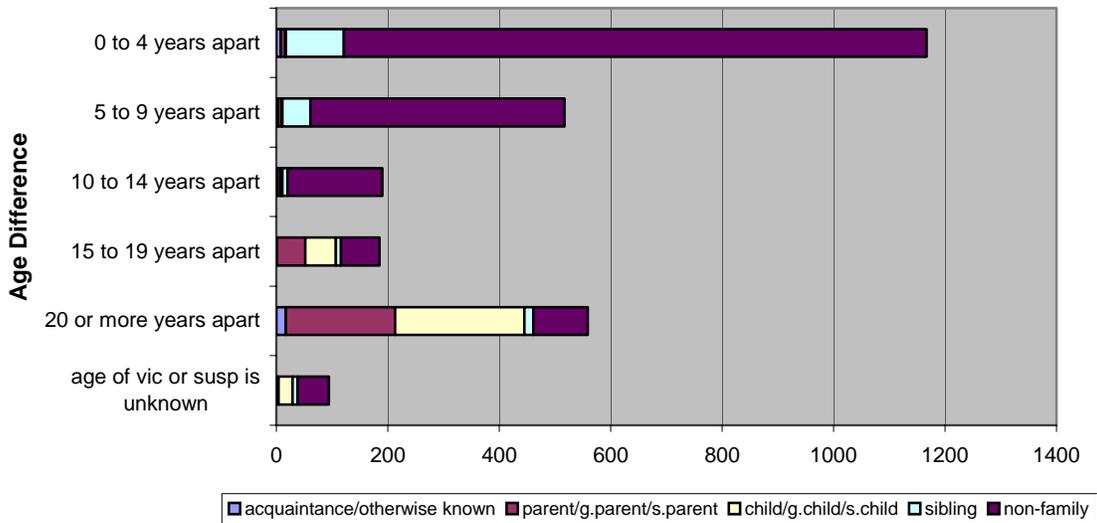
Sex of Victim and Suspect. Next we looked at the relationships broken down by sex of the victim and suspect. The assumption with domestic violence crimes was that the perpetrator is a male and the victim is a female. Looking at the chart below (Figure 9), across all three cities, this assumption seems to be validated. Male-on-female partner cases constituted the overwhelming majority of domestic violence cases. This category was followed by female-on-male partner incidents. Non-partner cases, however, no matter what the sex of the victim or perpetrator, were much rarer than partner cases. Note, however, one difference across the three places; the overall rate of domestic violence is lower in Middletown. This is seen in the fact that the rate of male-on-female partner violence is about two-thirds of the comparable rate in the other two cities. In most other relationship categories, differences across the three communities are negligible.

Figure 9. Sex of Suspect & Victim by Relationship Across Cities (Domestic Violence Incidents)
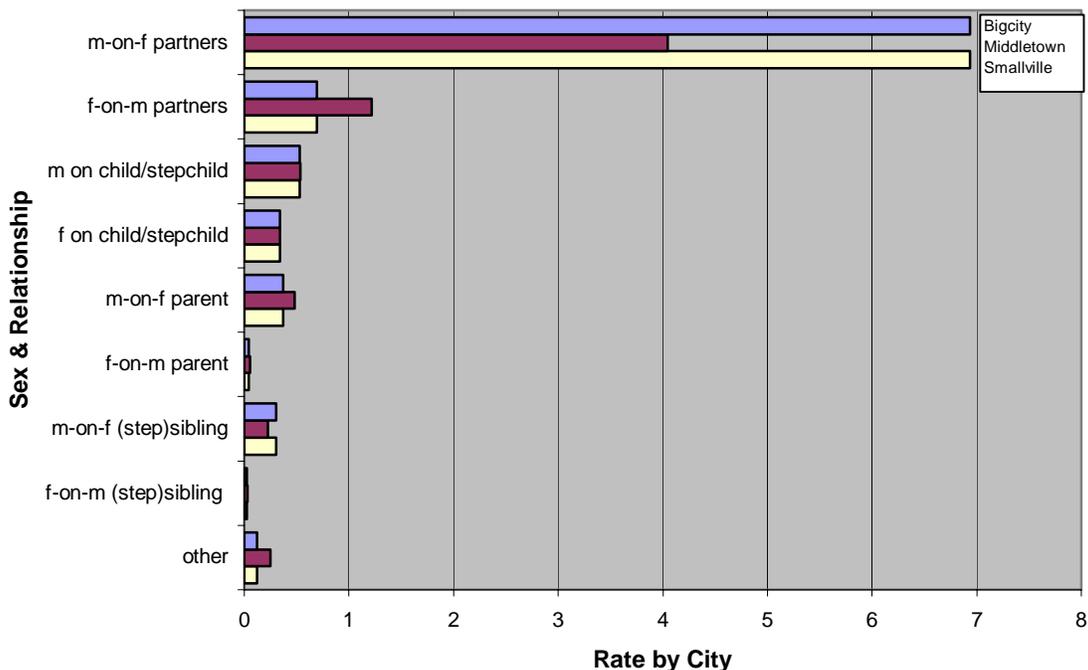
Injuries and Weapons. Lastly, we looked at the injuries incurred during domestic violence incidents (Figure 10) and weapons used (Figure 11). For these three cities, most domestic violence incidents involved no physically observable injury (52%).[12] When the victim did suffer an injury, it was usually a superficial one, characterized by scratches, minor cuts, bruises, discolorations, bumps, and/or swelling (43%). Four percent of the incidents involved an unknown injury, and the remainder of cases involved a major injury (e.g., broken bones, internal injury, severe laceration, or other major injury) (.01%) or death (three cases, or .001%). In terms of weapons, most were personal weapons (e.g., hands, feet, teeth, etc.), followed in frequency by no weapon or an unknown weapon. A small handful of cases each involved a blunt object or motor vehicle, while 17 incidents involved a gun and 39 involved a knife.

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[12] However, in many domestic violence cases, injuries may not become apparent until days after the incident (bruises, for example), so readers should interpret these numbers with caution.

Figure 10. Types of Injuries in Domestic Violence Incidents
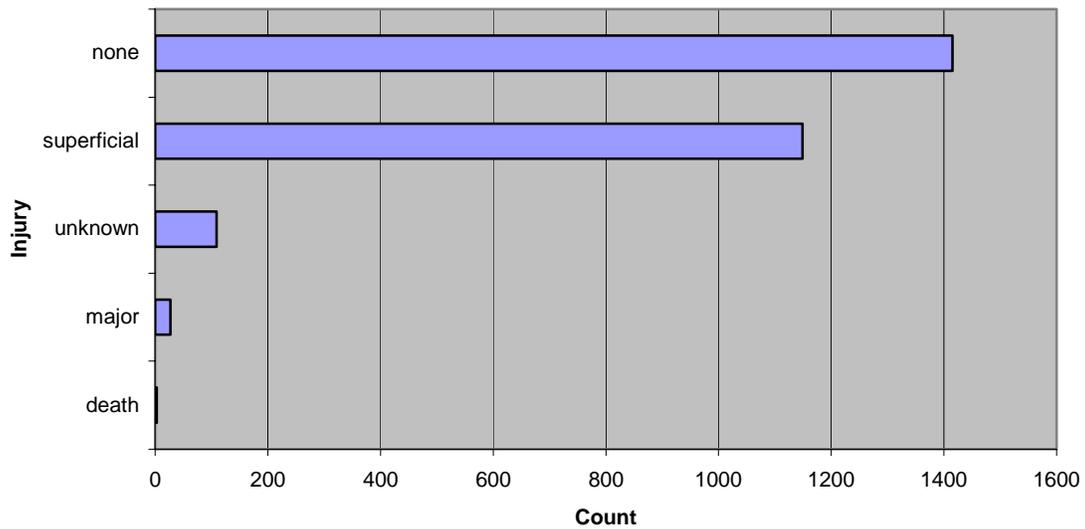
Figure 11. Types of Weapons in Domestic Violence Incidents
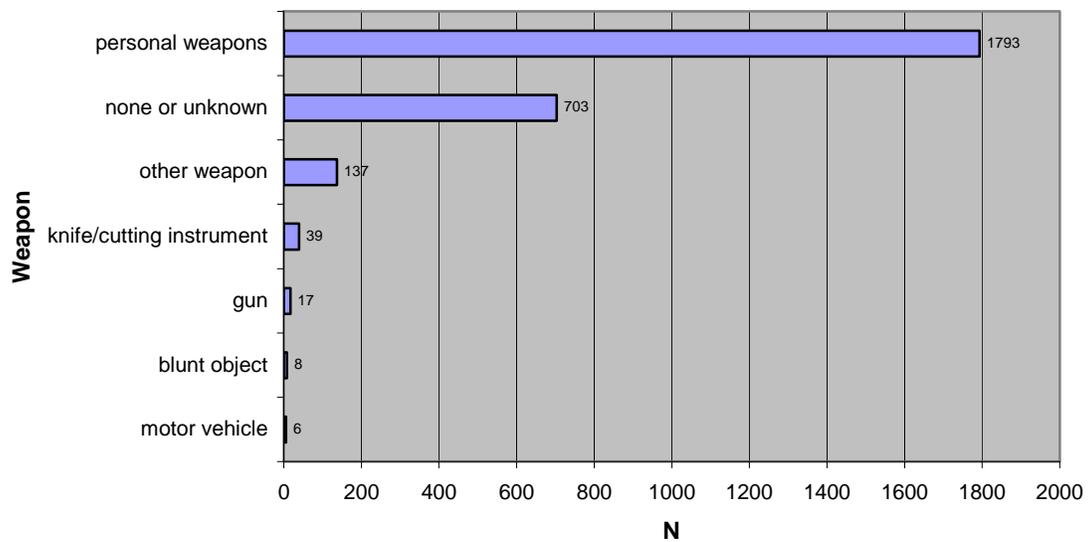
VI.   Non-Intimate Assault

The final two types of personal crime that we examined during the grant period

were assault (aggravated assaults, simple assaults, and intimidation) and sexual assault.

In order to distinguish these from the domestic violence cases, we chose only assault and sexual assault incidents that occurred to *non-intimate* relationship victims (i.e., no partners or close family members). As with the domestic violence incidents, we chose to examine these cases because they represent a violent crime and, therefore, are of particular concern to law enforcement and community residents. However, because these specific incidents involve non-intimate relationships, they are perhaps even more difficult to investigate and solve. Thus, if we are able to develop *patterns* of non-intimate assaults and sexual assaults, this information—such as typical locations or victim and suspect characteristics—may aid law enforcement response endeavors, as well as community prevention endeavors. Below, following the pattern for the prior two crime reports, we provide detailed descriptive information and visual representation of incident patterns. We discuss first the "regular" assaults and then the sexual assaults.

Assault Incidents. There were a total of 4,369 incidents involving regular (non-sexual) non-intimate assaults in 2003.[13] Of these incidents, more than three-quarters were in Bigcity (77%) while the remaining cases were almost evenly split between Middletown (10.6%) and Smallville (12.3%).

Victim-Suspect Incidents and Sex. As one can see in Figure 12, most of the assault incidents were single victim-single suspect incidents, and among those, most were male-on-male, followed in frequency by male-on-female and then female-on-female. In cases that had single suspects and multiple victims, there were a fairly equal number of male-on-female and male-on-male incidents. However, in cases with multiple suspects and a single victim, most were male-on-male, followed in frequency by female-on-

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[13] There were actually 4,373 incidents involving non-sexual, non-intimate assault. However, four of these incidents also involved sexual assault, so we placed these four cases in the sexual assault file. Thus, we had 4,369 regular assaults in the final file.

female. There were few cases in the "multiple suspect-on-single victim" category involving a victim of a different sex from the suspects. Finally, the smallest victim-suspect scenario was the multiple suspects and multiple victims category. In these cases, there were a relatively equal number of male-on-male, female-on-female, and male-on-female cases. These incidents rarely involved female-on-male assaults.

Figure 12. Victim-Suspect Scenario by Sex (Non-Intimate Assaults)
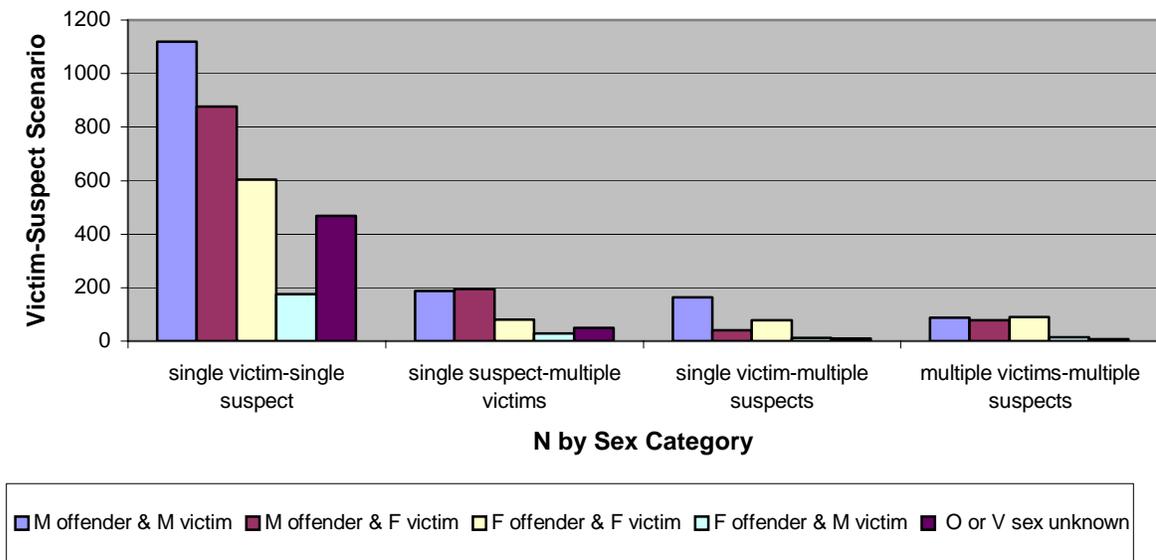
Age and Relationship. Turning now to ages, the victims' ages ranged from 1 to 87 (with a mean of 29) and the suspects' ages ranged from 1 to 98 (with a mean of 28). Unfortunately, in a full quarter of the assault cases, either the victim or the suspect's age was unknown (24.7%). For incidents in which the ages were known, just under a third of these involved victims and suspects who were 4 or fewer years apart in age, followed by cases in which the age difference was 5 to 9 years apart, then cases in which the victim and suspect were 20 or more years apart (Figure 13). The last category appears to have a disproportionately large number of incidents but this is due to its larger age grouping.

When this category was broken into smaller age groups (20-24 years, 25-29 years, etc.),

the pattern of decline with increasing age differences continues.

Figure 13. Age Difference between Victim and Suspect
(Non-Intimate Assaults)
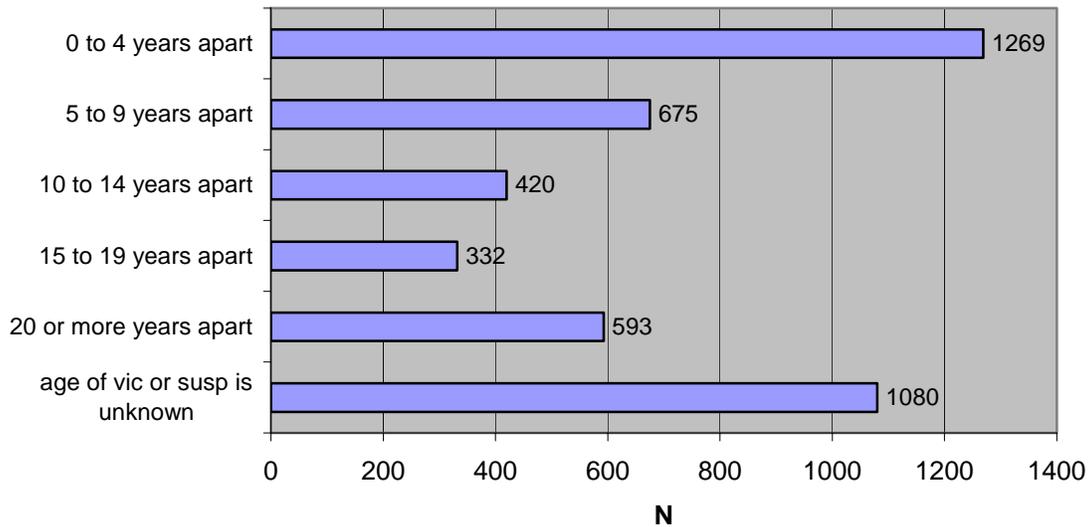
Now breaking these sex and age groups into relationships (Figure 14), for all

incidents in which the age was known, most cases had a victim who was an acquaintance

of the suspect (this relationship comprised more than 40% of the known-age incidents).

In the incidents in which either the victim or suspect's age was not known, most of the

relationships were also not known (more than 60% of these incidents). In the cases in

which the age difference was relatively small (between zero and nine years apart), a

substantial proportion of the cases involved acquaintances and "otherwise known"

relationships. However, once the age difference increased to 10 or more years apart, a

larger proportion of incidents involved strangers and a smaller proportion involved

suspects who were known to the victim. In fact, very few cases involved friends,

neighbors, teachers, in-laws, students, employers/employees, or "babysittees"—the

27

"other" category. Ultimately, it appears that non-intimate assaults tended to involve acquaintances or strangers.

Figure 14. Age Difference Between Victim and Suspect, by Relationship (Non-Intimate Assaults)
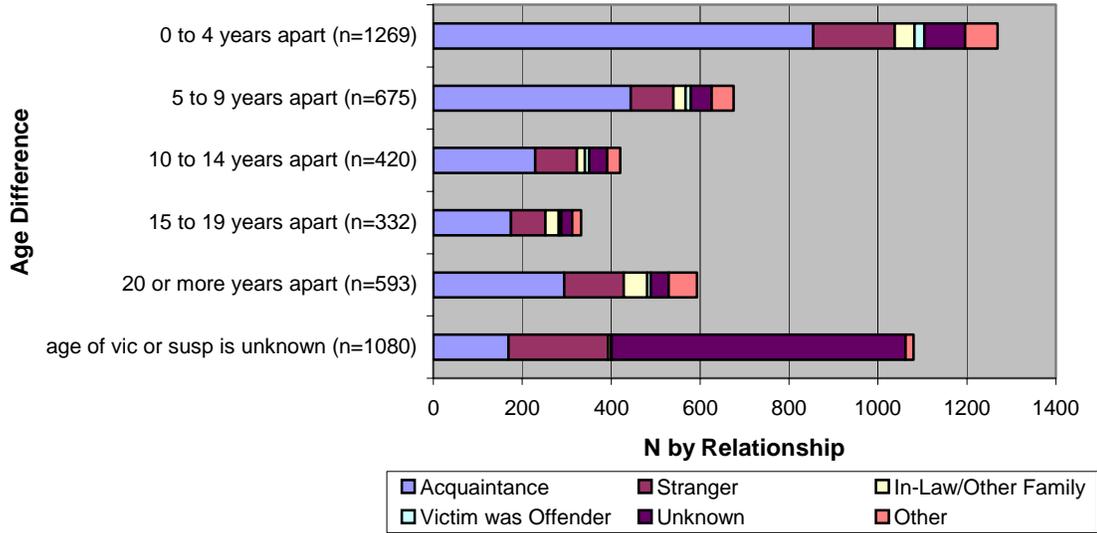
Weapons and Injuries. In most of the assault incidents, the victim sustained no visible injury (see Figure 15). However, even in these incidents, the suspect typically used either an unknown weapon or a personal weapon (hands, feet, teeth, etc.). In very few cases involving no injury did the suspect not use a weapon (the dark blue area in the chart). In cases where the victim did sustain an injury, it was typically a superficial injury, and again the weapon of choice was a personal weapon or unknown weapon, followed in frequency by no weapon or "other" weapon[14]. In only a small number of cases (3.5%) was a major injury incurred, and in these incidents, weapons include gun or other firearm (29%), personal weapons (24%), knife (11%), other weapon (22%), or unknown weapon (14%).

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[14] It is unclear how a victim could sustain an injury (even a superficial one) when the suspect used no weapon. We could find no information on this possible scenario in the OIBRS codebook.

Figure 15. Injury by Weapon (Non-Intimate Assaults)
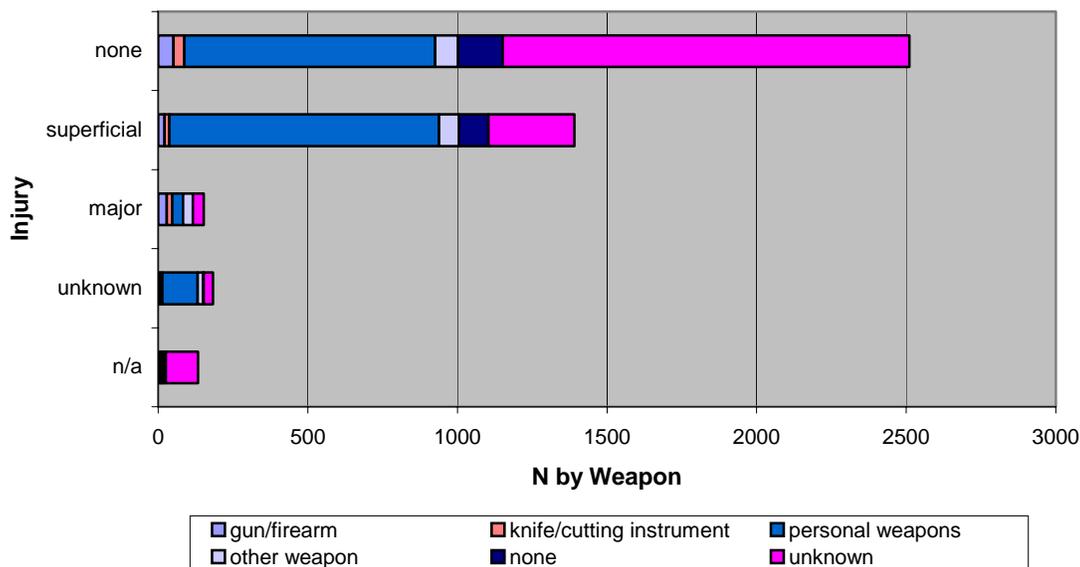
Alcohol and Drug Use. In only a very small percentage of cases were the perpetrators suspected of using alcohol (5.8%) or other drugs (1.4%). Overwhelmingly, it seemed that non-intimate assaults were spurred on by other factors, such as, perhaps, lovers' quarrels or felony incidents (robberies or other felony crimes that eventually turn into assaults).[15]

Location by Relationship. Finally, we examined the locations of the non-intimate assault incidents by relationship between victim and offender (Figure 16). The majority of incidents took place in a single setting (96%), and of these locations, most were in public, followed by residential locations, such as single-family homes, multiple dwellings, or other residential structures (39% of all incidents). Of the assaults that took place in public, most involved victims who were acquaintances of the suspect, followed

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[15] The "circumstance" data were missing or coded as "not applicable" in many cases, so this can be mere speculation currently; perhaps a look at actual police records would shed more light on circumstances of these, as well as of homicide, incidents.

by victims who were either strangers or unknown to the suspect. Similarly, with residential assaults, most victims were acquaintances of the suspect. In fact, no matter where the assault took place, the largest relationship category was acquaintance. Five percent of incidents took place in some "other" location (not residential, commercial, retail, public access, or outside). A small percentage of cases took place in more than one location (4%). Ultimately, it appeared as though non-intimate assaults took place in public areas. This pattern makes sense, considering that these cases involved people who were only acquainted with one another or who did not know one another at all.

Figure 16. Locations for Non-Intimate Assaults, by Relationship
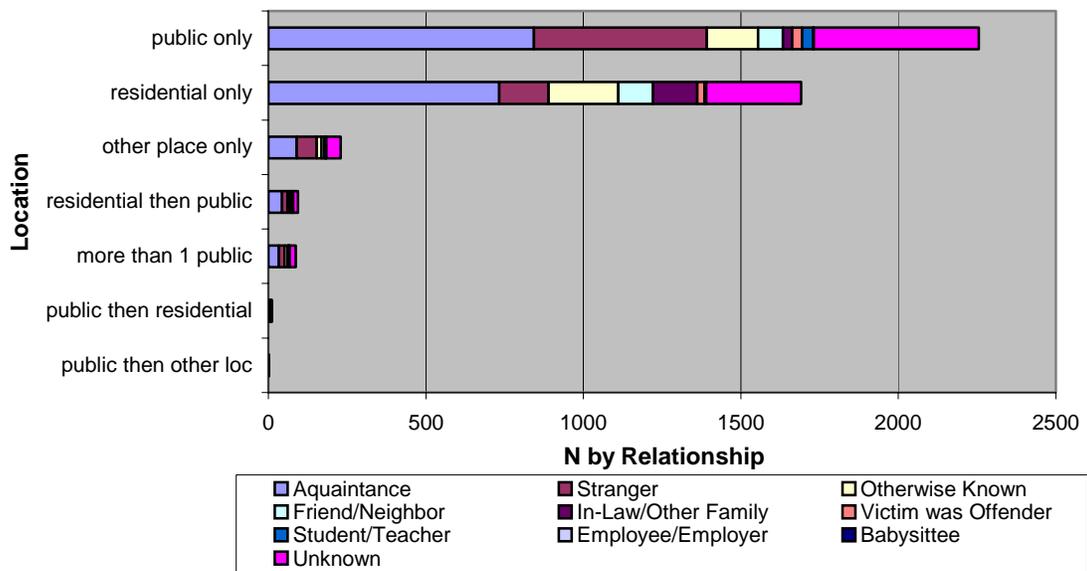
VII.   Non-Intimate Sexual Assault

Incidents, Victims, & Suspects. There were 378 sexual assaults among non-intimate relationships in 2003. As with the domestic violence and regular assault offenses, three quarters of these took place in Bigcity, while 10.8% took place in Middletown and 13.5% took place in Smallville. Also, a majority of sexual assaults were one-on-one incidents (see Figure 17).

Figure 17. Victim-Suspect Scenarios in Non-Intimate Sexual Assault Incidents
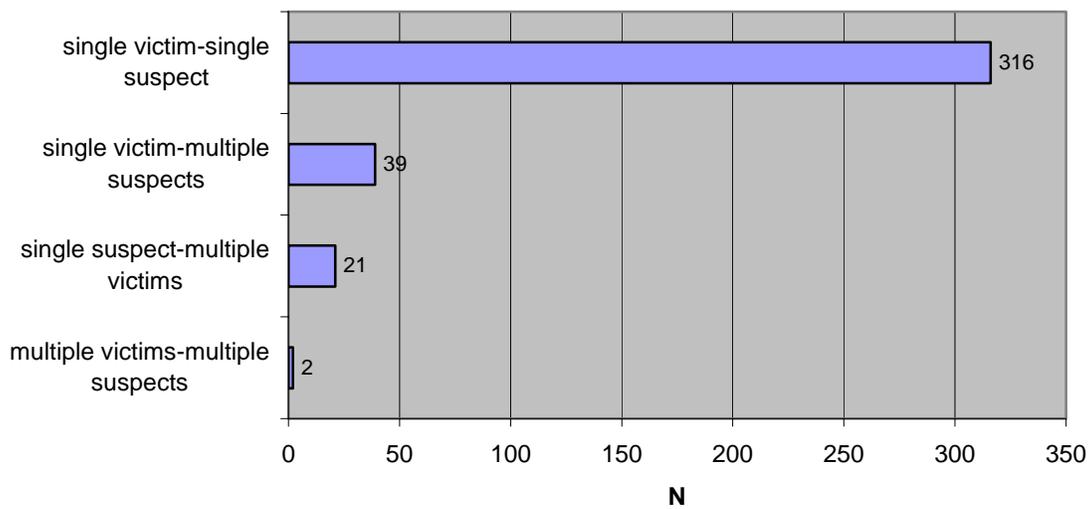
Sex, Age, and Relationship. In contrast to the regular assaults, most of the sexual assault incidents involved male-on-female scenarios (for both 1-on-1 cases and for multiple-on-multiple cases)(see Figure 18). Specifically, of the 316 single victim-single suspect scenarios, 244 (or 77%) were male-on-female. In the two multiple-on-multiple incidents, both cases involved male suspects and female victims. Of all non-intimate sexual assaults, eight percent of incidents involved male victims (and most of these also involved male suspects).

Figure 18. Sex Scenarios for Non-Intimate Sexual Assaults
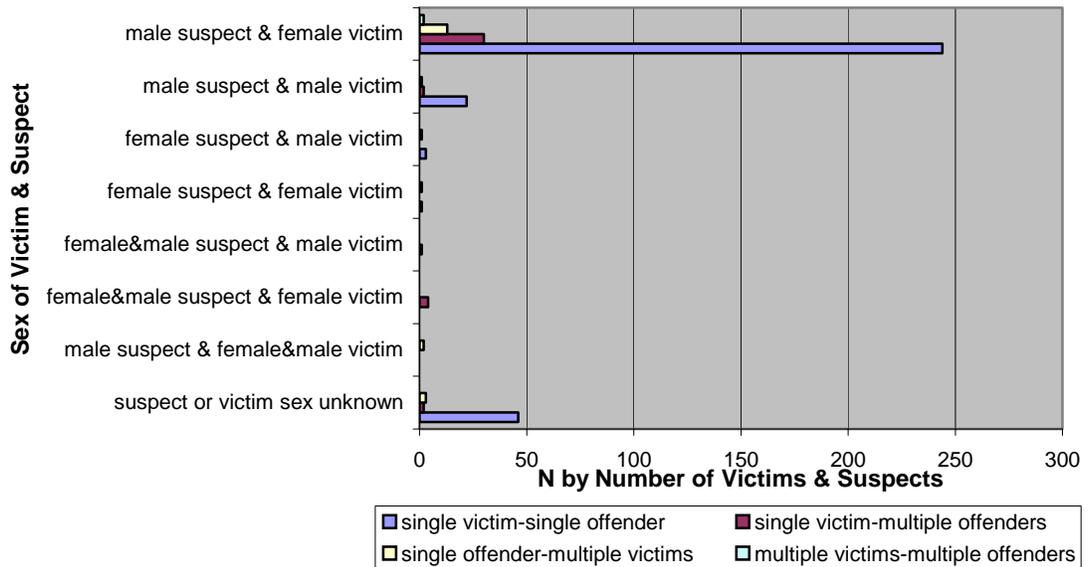
To investigate this further, we then looked at the age difference between victim and suspect by sex scenario (Figure 19). We found that when the incident involved a male-on-female scenario, the most common age difference between the victim and suspect was from 0-4 years apart. However, when the scenario was male-on-male, the most common age difference was 20 or more years apart. Thus, it appeared that the incidents involving male victims of sexual assault more often involved pedophilia, whereas incidents involving female victims were likely to be more acquaintance rape circumstances.

Figure 19. Age Distribution of Sexual Assault Victims

Legend:
- 0 to 4 years apart
- 5 to 9 years apart
- 10 to 14 years apart
- 15 to 19 years apart
- 20 or more years apart
- age of vic or susp is unknown
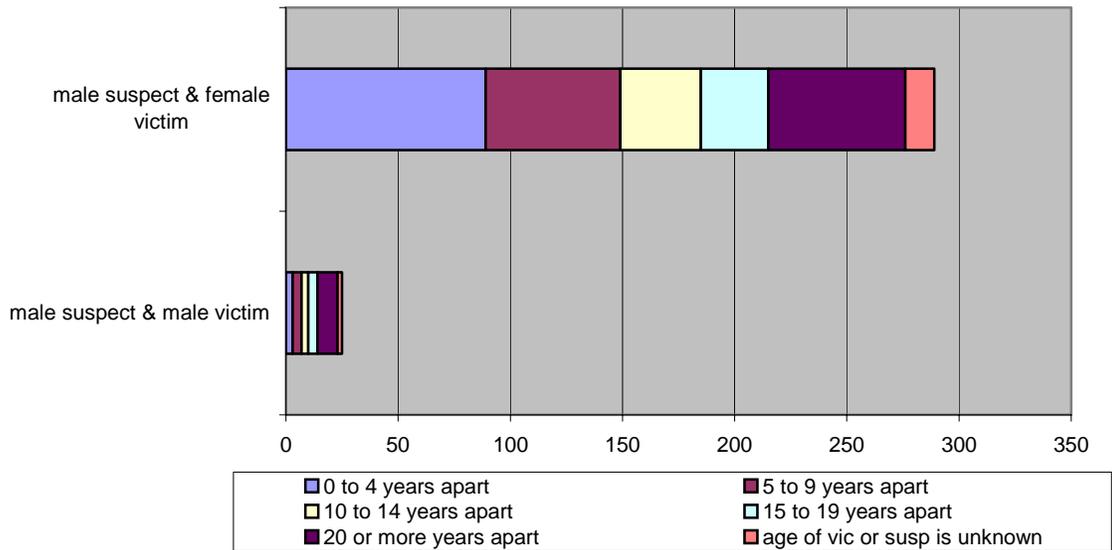
Also, the mean age of victims in sexual assault incidents was 21 (eight years younger than the mean for non-sexual assaults), with more offenses occurring to 14 and 15-year olds than any other age. However, upon disaggregating age groups by sex of victim (Figure 20), one can see that there are very different patterns. For females, the age group with the largest number of sexual assault victimizations was 13-15 years old; in contrast, for males, the largest number of assaults were against victims who were between 4 and 6 years old.

Figure 20. Distribution of Sexual Assault Victim Ages by Victim Sex
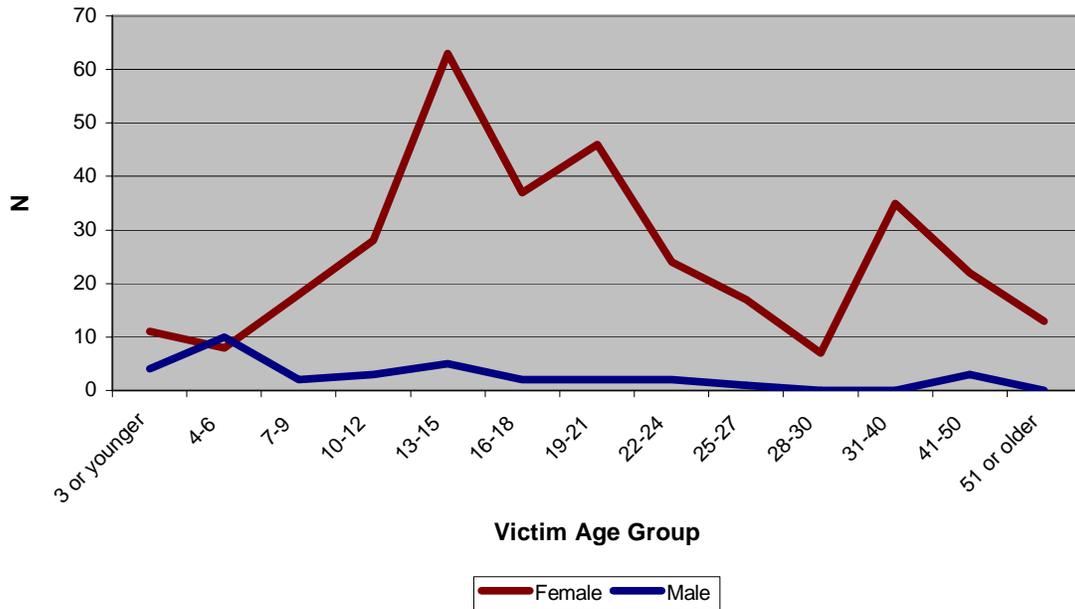
Relationship. Looking further at the sex of the victim, we performed a crosstabulation of victim sex with relationship. The chart below (Figure 21) illustrates that for both male and female victims, the most common relationship was acquaintance. However, male victim incidents had almost as many unknown relationships as acquaintance relationships—in fact, a full one-third of male victim incidents involved unknown relationship types in contrast to 17% unknown relationship types among female victim incidents. It is not clear why this difference emerges. It might be that male sexual assault victims are less likely than their female counterparts to describe their attacker (i.e., this could be a reporting problem). Alternatively, the pattern may simply be an artifact of the relatively small number of reported male sexual assault victims in the three places analyzed here.

Figure 21. Victim Sex by Relationship (Sexual Assaults)
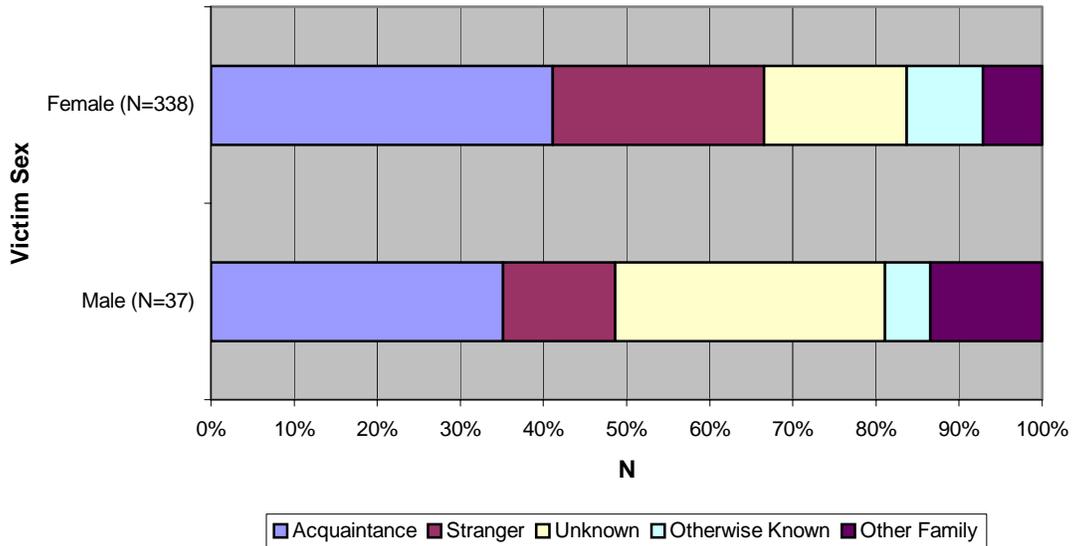
Location. Since the mean age of victims was younger for sexual assaults, we

were curious to see if the locations of these sexual assaults were similar to or different

from the locations of regular assaults. As Figure 22 demonstrates, in sharp contrast to the

regular assaults, slightly more than half of which took place in public, 67% of sexual

assaults took place in residential settings. Twenty-seven percent of non-intimate sexual

assaults took place in public or outside, while the rest (6%) took place in some other

location.

Figure 22. Location of Sexual Assaults
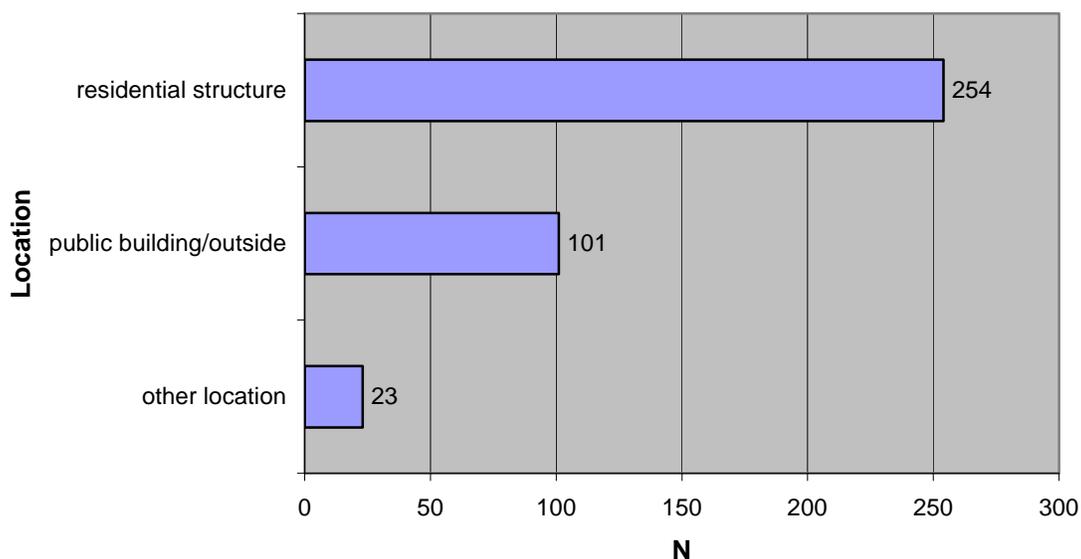
Injury and Weapon. Finally, we examined injuries and weapons in the sexual

assault incidents (Figure 23). As with the other crimes discussed to this point, most

victims of sexual assaults did not suffer an additional injury during the crime.[16]

However, even in those incidents, the suspect was reported to have had a weapon. In

most cases with no injury, personal weapons (hands, feet, teeth, etc.) were the weapons of

choice, followed by unknown weapon type. When superficial injuries were incurred, as

was the case in 25% of the incidents, the most common weapon type was unknown,

followed by personal weapons, and then no weapon. Two incidents with superficial

injuries involved a gun or other type of firearm, and one incident involved a weapon in

the "other" category (in this case, a knife). In cases in which victims suffered a major

injury (less than 2% of cases), three incidents involved unknown weapons, two involved

personal weapons, and one case each involved a gun (or other firearm) and no weapon.

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[16] As mentioned in footnote 12, however, injuries may not be immediately noticeable, so these figures
should be considered with caution.

Figure 23. Injury by Weapon (Sexual Assaults)

Legend: gun or firearm ▪ knife/cutting instrument ▪ personal weapons ▫ other weapon ▪ none ▪ unknown
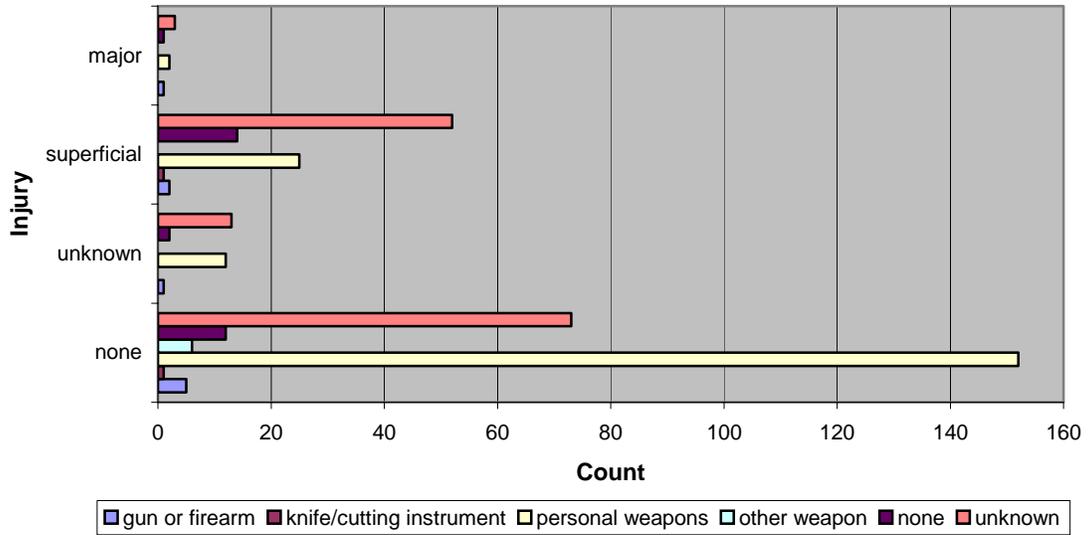
VIII. Larceny

Our primary focus was on violent crimes; however, near the end of the grant period, we began preliminary analyses of larcenies. Larcenies are the most common property crime, and we hoped to shed some light on the patterns of this crime in the three Ohio cities.

Incidents and Crimes. There were a total of 9,505 incidents involving larceny in 2003. Most were in Bigcity (71.2%) while the rest were split between Smallville (15.9%) and Middletown (12.2%). Of the 9,505 incidents, the majority involved just a single crime—larceny (91.7%) while 8.3% of cases involved larceny and some other crime (up to four crimes total). In terms of larceny type, just over one-third of cases (34.2%) involved a crime described as "other" larceny, meaning that these did not fall into a specific larceny category. Of those that did fit a category, the majority of those were thefts from motor vehicles. The figure below (Figure 24) illustrates this.

Figure 24. Types of Larcenies
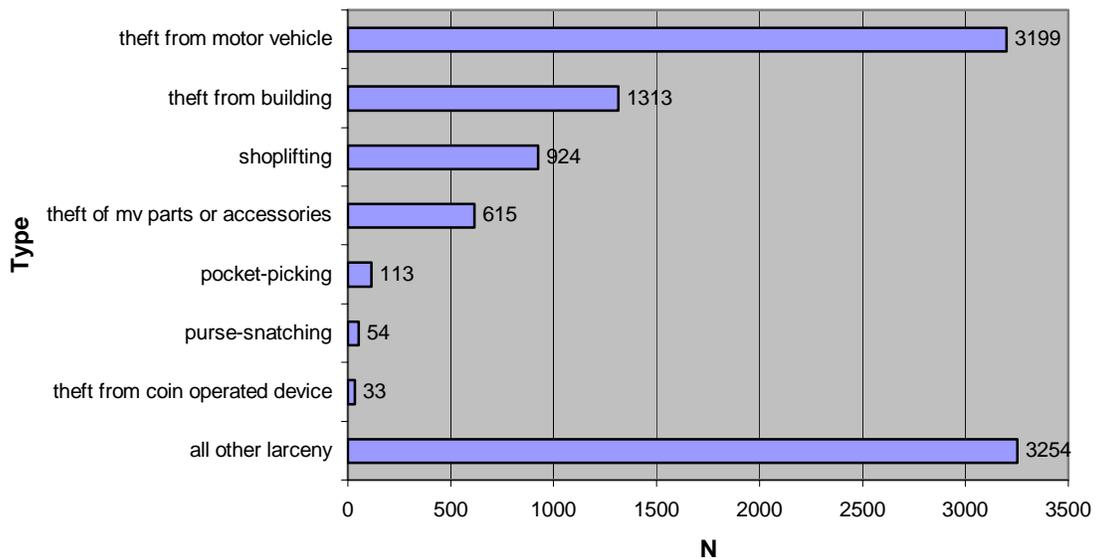
Property Values. The overall mean property value stolen in larceny incidents was $450.45, but the range was from $0 to $86,100. Looking at specific larceny categories (Figure 26), the type with the largest average property value lost was thefts from buildings ($786), followed by "other" larceny ($517). The categories with the lowest average monetary losses were thefts from coin-operated devices ($87) and theft of motor vehicle parts or accessories ($97). Broken down into specific property codes, however, the property with the largest mean value stolen was trucks ($11,705), followed by heavy construction equipment ($8,345). The property with the smallest mean values stolen was commercial/business property ($29), followed by pending inventory ($35) and alcohol ($69).

Figure 26. Mean Dollar Value Stolen by Larceny Type
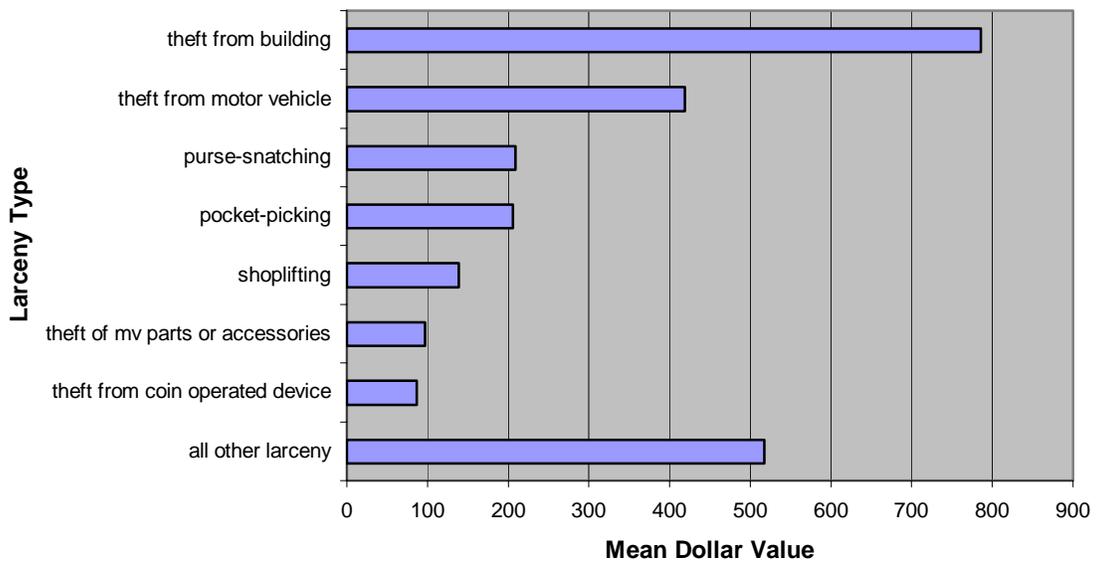
IX.   Documentation of Problems/Issues Encountered

We encountered various problems with the data as we created files and conducted analyses. Some problems were related to the availability of data, while others related simply to data entry errors.

Perhaps the most important issues that we noticed when undertaking our analyses pertained to overall availability of certain data items and availability of alternate data sources to use as comparisons to check validity and reliability. One of the benefits of NIBRS data is the ability to determine the extent to which patterns exist in the data. That is, an analyst can answer such questions as, "Do most of the arguments leading to homicide take place in bars?" This would give information relevant to problem-oriented policing so that, for example, steps might be taken to curtail hours or otherwise develop strategies to prevent such incidents. However, for the three cities examined, most of the homicide reports contained no or vague information in the fields most useful in this respect: data element "aggravated assault/homicide circumstances" in the victim file and data element "method of operation" in the offense file.[17]

In addition, it should be noted that homicide is most often the fatal outcome of another crime, such as domestic violence or child abuse. Being able to categorize the incidents based on this presumed underlying crime would permit us to determine the likelihood of being killed when these crimes occur. Thus, it would be very useful if we were able to add circumstance and method information ourselves to the data provided us,

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[17] "Method of operation" is not a required field in NIBRS reports; however, OIBRS contained this field in its codebook, and police could enter up to five unique details of the incident. This variable could provide details such as whether the offender wore a ski mask in a robbery or burglary incident, whether an accomplice was involved, or whether the victim was threatened. Unfortunately, for the majority of incidents reported, the field contained a code for "not applicable" or "other." In fact, in Middletown and Smallville, all incidents contained the code "not applicable" for the method of operation element; Bigcity was the only city for which a minority of the cases included a relevant code for this field.

by reading the original offense reports. This would permit us to see, (1) if the relevant data are being captured in the reports, and (2) whether they provide us with information useful to developing patterns.

Moreover, it would be helpful if we could easily compare particular crime incidents from the OIBRS file to other data files, such as the FBI Supplementary Homicide Reports (SHR). The SHR has victim and offender data—including for circumstance—for all homicides reported in a given year. The ability to compare the OIBRS homicide data to the SHR data would enable researchers to be more confident in the validity of the data. However, there is no way to simply match the OIBRS data with the SHR data; the incident numbers are not comparable. Creating a variable for matching purposes would make the process of establishing data validity much easier, and ultimately, make the data more valuable to the researcher. Such a comparison would be useful in terms of understanding underlying patterns of crime and the sequence of events that lead to final outcomes, and it would be beneficial to the overall community in terms of prevention efforts. When we undertook our homicide analyses, the 2003 SHR data were not publicly available. However, we hope to obtain these data for comparison in the very near future.

Other issues pertained to data entry errors or peculiarities in particular data segments. Specifically, we noticed that some variables needed to be reverse coded (e.g., the alcohol, drug, and computer flags), while other data elements (victim or suspect age, relationship, or victim type) simply had incorrect entries. In some instances, incidents appeared in one data segment (say, the suspect segment) but did not appear in another data segment (the victim segment), which resulted in missing information (although this

happened very rarely). For these issues, we corresponded with Jim Luebbers (the OIBRS

specialist at OCJS) in order to understand and try to solve the problems.

X.   Summary

Looking at the above crimes overall, there are some common patterns that stand out. To begin with, for all types of crime (violent as well as property), the majority of cases involved just a single crime as opposed to numerous types of crimes—in other words, homicide incidents typically involved *only* homicide and larceny incidents involved *only* larceny. Also, all crimes are characterized by one-on-one scenarios; that is, they typically involved a single suspect and a single victim.

With regard to the violent crimes, most domestic violence and assault incidents tended to involve no apparent injuries and suspects tended to use personal weapons (hands, fists, feet, etc.). Homicides, however, typically involved the use of some type of firearm (handguns or other type) as the weapon of choice. There were relationship differences among violent crimes as well. Specifically, homicide incidents more frequently involved victims who were "unknown" by the suspects, whereas for assaults (both regular and sexual), the most common relationship was acquaintance. For domestic violence crimes, most relationships were either partners (non-family) or parents or children (close family).

There was some disparity across crime types in terms of location. Homicide incidents tended to be fairly evenly distributed across residential and public settings. When it came to assaults, regular assaults took place more often in public than in residential settings (54% versus 39%), while sexual assaults most often occurred in residential settings (67% versus 27% in public). The sex of victims varied by type of violent crime, also. In homicide and regular assault incidents, most victims were males, but in domestic violence and sexual assault incidents, most victims were females.

Finally, the majority of victims in larceny incidents were individuals, followed by businesses (not shown). The average monetary value of stolen property in these incidents was less than $500, but the range of property value is rather large (from no value at all to a maximum of $86,100). Thefts from motor vehicles were the most common type of larcenies (after "other" larceny), yet the type with the largest average monetary loss was theft from buildings.

The ability of OIBRS data to quantify different types of crimes (e.g., domestic vs. non-domestic homicides, thefts from motor vehicles vs. other larcenies) means that each of them can be tracked over time. This will permit an agency to determine how well a particular strategy (e.g., arresting batterers, video surveillance of streets, respectively) deals with a particular type of crime. It will also be useful for educating citizens on the nature of crime in their community and the extent of risk they face. Coupled with a crime mapping facility, which many police departments are adopting, this will provide the police with additional tools for dealing with crime and disorder problems with greater precision.

Based on our analysis of the OIBRS data from three cities for one year, certain directions for additional studies are suggested. First, the development of new categories should be extended to other crime types – for example, to what extent is a homicide the fatal outcome of an armed robbery? Second, analyses should cover the entire state – with fast and inexpensive computers and storage, this should not pose a problem. Third, OCJS should consider making this type of analysis a permanent feature of its annual report, or at least incorporating a special section in its report highlighting the analysis of specific crime types.

APPENDIX: CREATING THE QUERY

1. Need to open the Smallville (or any other city being examined) MS Access file and go into "relationships" under the "tools" menu.

2. Make sure that the admin table is the main table (will be the one farthest to the left), with incident as the KEY variable (this will be bolded). Then define one-to-many relationships between this table and all other tables, using incident as the match variable. Thus, drag the incident from the admin table to the incident variable in all other tables. There should be eight left-to-right arrows, pointing from the admin table to all other tables. For each one-to-many relationship, go to "join type" in the options box, and select option #2.

3. Once these one-to-many relationships are defined and *saved* (by moving back to the data window), go to the database window and click on "queries" instead of "tables" and then click on "create query in design view."

4. "Show tables" will pop up. Choose the victim table and the suspect table (using either the "add" option or by double clicking each table), then close the "show tables" window.

5. Link these two tables with "incident" (by dragging from left to right) and then right click on the link line to look at the "join properties." Make sure option #1 is chosen.

6. Double click on the variables that you want, and they will appear below. We want the incident number (either one should work), victim number, suspect number, victim and suspect race, victim and suspect sex, victim and suspect age (this is the "from" age, not the "to age"), and injury1. Right click within the race, sex, and age boxes, go to the "caption" line, and rename the variables vic_race, susp_race, vic_sex, susp_sex, vic_age, and susp_age.

7. Go back to database view and make sure all variables are in the file.

8. Save the query with a new name, "all_v_s_larc."

9. Create a second query by following the same steps (steps 4 through 8), but now open the "all_v_s_larc" query and the victim-suspect table, and match these on incident #, victim number, and suspect number. Right click on each join type and choose option #2 this time, so that we have all victims, not just individual victims. Double click on all variables in the "all_v_s_larc" file to select them again.

10. Then double click on the relationship variable in the victim-suspect table to add this to the query, and save this with a new name, "all_v_s_larc_relat." **This file should have the same # of cases as the first query.**

11. Create a third query by repeating the same steps, but now open the last query ("all_v_s_larc_relat") and the offense table.

12. Match on incident number (option #1 in join types), and double click to retrieve all variables from the "all_v_s_larc_relat" query, as well as the offense code, larceny type, location1, location2, and the weapon1 from the offense table.

13. Save the query with a new name, "all_v_s_larc_relat_offense." **This query should have more cases (some incidents have more than one offense) than the first two queries.**

14. Next, create a fourth query by opening the last query (all_v_s_larc_relat_offense) and the victim-offense table.

15. Match these two on incident #, victim number, and offense code, choosing option #1 as the join type for all three variables (**this final query ensures that the appropriate offense code will be matched with the correct victim…..before this, we might have multiple offense codes per single victim, because the last query was matched only on** *incident* **number**).

16. We already have all the variables that we need, so no need to double click on any variables in the victim-offense table. Just click on all the variables in the "all_v_s_larc_relat_offense" table so we have the same ones. Then go into database and save the final query as "all_v_s_larc_relat_offense2." **This final query should have fewer cases than the previous query, but more cases than the first two queries.**

17. Now, create one <u>final query</u> by opening this last query and the <u>property </u>table. Match on incident number, with join type #2 selected. Click on all variables in the last query, plus all property variables, starting with the loss code (we need seven property variables).

18. **There should be more cases in this than in all other queries, because even if there was just one crime type (theft), there may be multiple objects stolen per incident.**

19. Save this as the final query, "larceny_with property."

20. Sort cases by incident number, then export this last query to Excel.