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**Exploring Demographic, Structural, and Behavioral Overlap Among Homicide Offenders
and Victims**

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Abstract

Criminologists tend to focus their attention on the dynamics of offending, paying only limited theoretical and empirical attention to the well-established relation between offending and victimization. However, a number of criminological theories either explicitly or implicitly predict similarities in the correlates and etiology of victimization and offending, suggesting substantial overlap across offender and victim populations. Empirical research over the last few decades confirms this overlap across offender and victim populations, at least among those involved in non-lethal incidents. This research explores whether similarities between offender and victim populations extends to homicide, using criminal justice, health care, and U.S. Census data, linked to homicide offenders and victims in Bernalillo County, New Mexico between 1996 and 2001. Our findings indicate substantial overlap in the social contexts and risk behaviors of homicide offenders and victims. However, our results also side with more recent suggestions that while many victims overlap with offender populations, there is also a group of victims that appears to be distinguishable from offender groups. These findings have important implications for both theory and intervention.

Exploring Demographic, Structural, and Behavioral Overlap Among Homicide Offenders and Victims

Introduction

Criminologists tend to focus their attention on the dynamics of offending, paying only limited theoretical and empirical attention to the well-established relation between offending and victimization. There is, however, a growing body of empirical evidence to suggest that offending and victimization are intricately linked and that both are exacerbated in the context of a structural disadvantage coupled with a lifestyle marked by risky behavior patterns (Daday et al. 2005; Davis et al, 2002; Lauritsen and Quinet, 1995; Sampson and Lauritsen, 1990). Moreover, while rarely applied to victimization, a number of mainstream criminological theories offer at least an implicit account of this overlap. However, research also indicates that overlap across these populations is incomplete, with a notable population of victims who do not exhibit an offending history or characteristics commonly associated with offending (Klebens et al.2002; Mustaine and Tewksbury 2000). The growing body of empirical work indicating both significant overlap and important divergence between victim and offender populations suggests that criminological theory and research needs to be more attentive to the role of victimization in the etiology of offending and to the conditions under which these populations are more or less likely to converge. This is particularly true for the study of lethal violence where, despite Wolfgang's (1958) pioneering efforts, limited work has explored victim/offender overlap.

We use data on homicide offenders and victims in Bernalillo County, New Mexico between 1996 and 2001 to contribute to this growing body of work. In particular, this work aims to illuminate the shared and divergent correlates of homicide offending and victimization. Most research in this area has focused on non-lethal violence (c.f., Dobrin, 2001), and, while

theoretical expectations would lead us to anticipate similar overlap among those involved in lethal violence, it is important to test this assumption. We focus exclusively on lethal violence and confine our analyses to participants in these lethal incidents. While Wolfgang's pioneering work on the dynamics of homicide (1958) relied on police incident report data to illuminate some of the important similarities among homicide offenders and their victims, more recent work on offender/victim dynamics in lethal and non-lethal violence has tended to utilize victimization or self-report data. This work shows that victims and offenders look similar compared to non-offenders, but has not been able to assess overlap across offenders and victims within incidents. Our analysis overcomes this limitation by including data on homicide offenders and victims, and the incidents within which they converge, thereby allowing us to compare offenders and their victims simultaneously. Finally, we examine differences within the victim population to assess the degree to which recent findings regarding the existence of a victim-only category among assault victims extends to homicide victims.

Theoretical Explanations for Offender-Victim Overlap

A number of criminological theories provide an explicit or implicit account of victim-offender overlap. Lifestyle/routine activities theory, self-control theory, and culture of violence theories explicitly predict significant overlap between offender and victim populations, indicating that both offending and victimization are linked via similar causal processes. Lifestyle/routine activities theory argues that variations in lifestyle (particularly vocational and leisure activities) shape an individual's exposure to risk and ultimately, that individual's likelihood of victimization and opportunities for offending (Cohen and Felson 1979; Cohen et al. 1981; Hindelang et al. 1978). Jensen and Brownfield (1986) critique lifestyle/routine activities theory for its focus on normative, mainstream activities, arguing that it is involvement in high-

risk activities and deviant routines that link victims and offenders. Anchored in their own empirical findings, their extension of the theory builds on the finding that offense activity is among the lifestyle factors most likely to increase victimization risk. This, they argue, reflects the “motives, vulnerability, or culpability of people involved in those activities” (p. 87). Dobrin (2001) elaborates on this, identifying three primary reasons why offenders may be at increased risk of victimization. First, they are commonly in contact with other criminals increasing their exposure to motivated offenders. Second, offenders may have less access to protection from criminal justice and/or legal authorities, making them more vulnerable targets. Third, victimization may be a direct result of an individual’s offending behavior in the form of a reprisal for a perceived wrong. These explanations echo those put forth in Luckenbill and Doyle’s (1989) account of the cultural conditions that give rise to violence. Building on Luckenbill’s (1977) work defining violence as a “situated transaction” their model suggests that conditions of structural disadvantage enhance disputatiousness and aggressiveness among residents, increasing the likelihood that victims seek reparation, often in the form of violence, for attacks against them (violent or otherwise).

Self-control theory also explicitly links offending and victimization and contends that the mechanism that draws this group of individuals to high-risk environments and activities is a shared trait—low self-control (Gottfredson and Hirschi, 1990). Though, as Jensen and Brownfield point out, this overlap may also reflect a differential opportunity/learning dynamic in which exposure to violence endorsing values and behaviors reinforces such behavior among participants, both victims and offenders (Akers, 1998). In addition, the risky activities that offenders and victims engage in often occur in settings where guardianship is limited and the chances of detection and punishment by formal and informal social control agents is minimal,

making criminal behavior a “rational” choice from a deterrence/rational choice perspective (Jensen and Brownfield, 1986). General Strain Theory (Agnew 1992, 2001) similarly offers an implicit account of this overlap, with victimization included among the various strains that heighten one’s risk for offending.

Criminological theory, then, provides both explicit and implicit accounts of the overlap between victim and offender populations. In general, these accounts introduce various personal (e.g., disputatiousness and aggressiveness, low self-control, strain, risky behavior patterns) and situational (e.g., resource poor areas with limited guardianship) factors to help explain why offenders and victims represent overlapping populations.

Empirical Studies of the Victim/Offender Overlap

Sampson and Lauritsen (1990) were among the first to systematically assess the relation between offending and victimization. Using the British Crime Survey, they found that deviant lifestyles, violent offending, and proximity to crime all significantly increase the likelihood of assault victimization. So, consistent with the theories outlined above, both violent and non-violent offending activity places individuals at risk of victimization and this risk is magnified under ecological conditions that place individuals in close proximity to crime. Moreover, these relationships held across various types of victimization (in particular stranger and acquaintance crime) and were independent of major demographic and individual level correlates of victimization. Similar findings have been reported in U.S. samples among both adolescents and adults (Dobrin, 2001; Esbensen and Huizinga, 1991; Lauritsen et al., 1991; Zhang et al., 2001) as well as among adolescents in Iceland (Bjarnason et al., 1999) and a general population sample in Bogota, Columbia (Klebens et al., 2002) and in the Netherlands (Wittebrood and Nieuwebeerta, 2000). Together, these studies provide consistent evidence that a deviant lifestyle increases victimization risk. Wolfgang’s early research (1958) suggests that such overlap would extend to homicide offenders and victims. Recent research confirms this, with homicide victims significantly more likely to have an arrest history than non-victims (Dobrin, 2001; Kellerman et al., 1993), though this body of

research is comparatively scant. Other research confirms that offenders and victims shared personal characteristics that shape their risk involvement. Low self-control, for instance, has been linked to a variety of high risk behaviors such as smoking, excessive drinking, driving too fast, gambling, and unprotected sex (Arneklev et al., 1993; Paternoster and Brame, 1998; Shaw and MacKenzie, 1991; Tremblay et al., 1995; Wood et al., 1993) and to both offending (Pratt and Cullen, 2000) and victimization directly (Schreck, 1999; Schreck et al., 2002; Stewart et al., 2004). Moreover, other research provides evidence that variation in latent antisocial traits across individuals influence victimization risks in much the same way they influence offending risks (Lauritsen and Quinet 1995; Wittebrood and Nieuwbeerta, 2000).

Despite growing evidence that offending and victimization have similar correlates, recent research indicates that overlap across offender and victim populations is not absolute (Klevens et al., 2002; Mustaine and Tewksbury, 2000). Mustaine and Tewksbury find three distinct categories of violence-involved individuals among a non-random sample of college students: victims, offenders, and victim-offenders. Moreover, the lifestyle/routine activity patterns of each group are distinct. The most notable distinction is among victims, who report no prior involvement in offending (whose victimization is related to routine activities that place them in close proximity to potentially violent environments) and victim-offenders, who do report past involvement in offending (who are more likely to be male and whose involvement in violence is linked to their prior criminal involvement and alcohol and drug use). Similarly, Klevens et al. (2002) compare the characteristics and lifestyle/routine activities of assault victims and victim-offenders. Using a nationally representative general population sample from Bogotá, Colombia, they find that victim-offenders exhibit lifestyles characterized by risk, whereas those in the victim only category do not. While distinct from the findings reported by Mustaine and

Tewksbury (2000), their findings similarly reinforce the fact that some victims overlap with offender populations, while others do not.

Since Wolfgang's (1958) now classic study of homicide, which documented notable demographic and behavioral similarities across offender and victim populations, the bulk of research examining victim/offender overlap has focused on non-lethal violence (c.f., Crandall et al., 2004; Dobrin, 2001). As such, our knowledge of the extent and nature of overlap across homicide offender and victim groups remains limited. In addition, most studies compare violence-involved populations (offender, victims, or both) to populations with no offending or victimization history. While this highlights differences between those involved in violence and those who have avoided it, similarities and differences within the population exposed to violence are generally masked by this approach. In other words, while victims and offenders may be more alike when compared to those not involved in violence, there still may be important differences between them. Using a violence-involved population (homicide offenders and victims), we examine the demographic characteristics, structural environments, offending histories, and risk involvement of homicide victims and offenders involved within the same incidents. Using these data we test the hypothesis that homicide involved individuals represent an overlapping population of individuals whose vulnerability is shaped by similar environmental characteristics and behavioral patterns. We also examine the extent to which overlap is contingent on prior criminal involvement on the part of victims by disaggregating the victim sample into victims with and without official histories of criminal involvement. A better understanding of the similarities and differences in the social and behavioral contexts that shape involvement in homicide has important implications for theory and intervention. We evaluate the implications of our findings for efforts to explain and reduce violence.

The Current Study

Building on theoretical expectations and empirical evidence suggesting substantial overlap in the dynamics of offending and victimization, the current study uses data from 332 homicide incidents to examine the nature and extent of overlap across homicide offenders and victims. In addition to the incident level data, which document the demographic characteristics of offenders and victims, we also collected criminal history and health care utilization data on all of the known offenders and victims involved in homicide incidents in Bernalillo County, New Mexico during the six years from 1996–2001.ⁱ We use these data to examine overlap and divergence in prior risky and criminal behavior across offenders and victims and to compare risk correlates across victims with and without a history of criminal involvement. Specifically, this study examines overlap in the demographic profiles (i.e., sex, age, and race/ethnicity) and structural environments (i.e., neighborhood characteristics such as high rates of crime, poverty, unemployment) of offenders and victims. We also examine overlap in the prior behavior of offenders and victims, focusing on their offending histories and risky behavior patterns (i.e., drug use/possession, drunk driving, trauma-related visits to the emergency department). Finally, to the extent that this overlap is incomplete, we examine variation across victims with and without a record of prior criminal offending.

Methods

Data

Data were collected within Bernalillo County, which contains New Mexico's largest and most urban city, Albuquerque. The population of Bernalillo County was 556,678 persons in the

2000 census, of whom 80.6% lived in Albuquerque. Data were collected from both criminal justice and medical records for all identified offenders (N=401) and victims (N=360) involved in the 332 homicide incidents in Bernalillo County during the six-year period from 1996–2001. From this, we excluded victims and offenders involved in domestic violence incidentsⁱⁱ and all children under 15. This reduced our sample to 310 incidents, involving 377 offenders (54%) and 321 victims (46%)ⁱⁱⁱ. While theoretical expectations regarding overlap across offenders and victims do not explicitly exclude individuals involved in family violence, there is reason to believe that the dynamics of family violence are unique in ways that would challenge expectations of overlap evaluated here (Bush and Rosenberg, 2004)^{iv}. Individuals were identified using a local computerized database compiled from police and sheriff's incident reports. For each individual, demographic, arrest history, and health care utilization data were obtained from distinct sources. While our hypotheses are not exclusive to homicide, we focus on homicide since official homicide data are generally less biased by underreporting than official data for other crimes. Moreover, high clearance rates for homicide in Bernalillo County (close to 80%) mean that the number of incidents for which we have information on both an offender and victim are higher than is the case for other types of crime. This is important since our analytical strategy involves comparing offenders and victims within incidents. Equally significant is the fact that few studies have examined the overlap hypothesis among homicide-involved populations, making this an important extension to this body of work.

Demographic data were culled from the automated incident level database shared by the local police and sheriff departments. While the database does not have any fields documenting the situational characteristics of the incident (i.e., offender/victim relation, motive, circumstance), it does contain demographic data (sex, age, and race/ethnicity) for offenders and

victims. It documents the address of the incident as well as that of the offender and victim, which we link to census data to facilitate tests of hypotheses suggesting similar exposure to ecological disadvantage across offender and victim populations. This information also allows us to determine whether homicide incidents occur at or away from the home address of offenders and victims (i.e., whether they travel to the incident).

Arrest history data were obtained from a local criminal history database with arrest information dating back to 1970. Individuals are entered into the database at the time of their first arrest in Bernalillo County and each subsequent arrest is then added to their file. It is important to note that this is a local crime history database, so any arrests outside Bernalillo County are not included in our arrest history measure. While a state or national arrest history measure would be preferable, civilians (non-criminal justice personnel) are restricted from accessing or using these databases. However, relying on local arrest history data makes our analysis more conservative as opposed to less since we run the risk of underestimating past criminal involvement among the sample rather than overestimating it^v.

Medical history data come from the University of New Mexico Health Sciences Center (UNMHSC) billing database compiled by University Physician Associates (UPA). As with the criminal justice data, these data offer a conservative measure of health care usage. However, UNMHSC represents the only level 1 trauma center in the state and the only public county health care facility, making it likely that the bulk of the sample utilize UNMHSC services when accessing health care, especially for serious injury or trauma. Because these data are unwieldy unless time-restricted, we focus on the three years prior to the homicide incident for each individual in the database.

It is important to note that the data of interest (offending, victimization, and health care usage prior to homicide involvement, as well as census data) may not be available for the entire sample. Some individuals may have been involved in previous incidents outside our search radius (Bernalillo County for past criminal involvement and UNMHSC for past health care utilization) or have no prior criminal involvement and/or no health care utilization in the three years preceding the incident. Additionally, some individuals do not have a mappable address and cannot be linked to census data. Databases were linked using combinations of individuals' social security number (SSN), date of birth (DOB), last name, first name, and sex. We examined various combinations of the linking variables and, where necessary, manually determined whether or not there was a positive link (See figure 1). Individuals who do not link to a given criminal justice or health care database are assigned a score of 0 for the measure of interest (i.e., an individual who does not link with the UNMHSC billing database is treated as not having utilized the health care resources of interest during the relevant time frame, and thus given a code of zero).

*****Figure 1 about here*****

Measures

Dependent Variable

The dependent variable is a dichotomous measure reflecting whether a given individual is a homicide arrestee/suspect (1) or a homicide victim (0). We treat actual arrestees and suspects similarly (hereafter labeled offenders). Our data come from computerized incident reports, where oftentimes the data are entered before suspects are arrested and cases cleared, making meaningful distinction between arrestees and suspects difficult to sustain. Since excluding

suspects from the analyses would significantly reduce our sample of offenders as well as our sample of incidents for which there is an offender/victim pair, we include them in the analyses.^{vi}

Offense history

Offense history data were used to generate various measures of past offending for the sample. A dichotomous measure (0=no, 1=yes) reflects whether offenders and victims have any prior arrests. These arrests are then disaggregated into violent (homicide, aggravated battery, aggravated assault, robbery, rape) and non-violent offenses (larceny, burglary, auto theft, fraud, forgery, embezzlement, and other petty offenses). Violent arrests are further disaggregated into lethal (homicide) and non-lethal violent offenses (aggravated battery, aggravated assault, robbery, rape). This disaggregation allows us to explore not only whether offenders and victims are similarly likely to have an offense history, but whether they exhibit similar patterns of prior offending.

Demographic and Structural Measures

As noted above, there are theoretical reasons to predict that certain demographic characteristics and structural environments increase the likelihood of criminal involvement (in the form of both victimization and offending). Police/Sheriff's data provide demographic descriptions of homicide offenders and victims (sex, race, age). These data also provide the home addresses of offenders and victims. This allows us to map offender and victim addresses using ArcView software and to locate these addresses within census block groups. We then use 2000 U.S. Census data at the block group level to identify the structural features of each individual's home environment.^{vii} In particular, for each individual we compiled block level census data noting the structural features that would increase the likelihood of contact with motivated offenders (% unemployed, % less than 8th grade education, % in poverty), as well as

increase criminal opportunities via exposure to criminal others (% male, % 18–29 years old, % divorced/never married) and decreased guardianship (% vacant housing, % renter-occupied housing, % single households).

Behavioral Measures

In addition to demographic and structural similarities between offenders and victims, we also explore overlap in risky behavior using data from the UNMHSC billing database and the police/sheriff's department. The UNMHSC data allow us to probe behavioral similarities among offenders and victims using a series of dichotomous measures reflecting health care use patterns consistent with high-risk behavior. One measure reflects whether the individual had any emergency department (ED) visits in the three years preceding the incident. While emergency department visits in and of themselves are not necessarily indicative of risky behavior patterns, we further disaggregate ED visits as general injury-related visits, assault-related injury visits, and firearm-related injury visits. In addition, health care records provide indicators of mental health diagnoses during ED or general hospital visits. Individuals who had any psychiatric diagnoses are identified, as are those with any alcohol or drug abuse diagnoses. In addition to these measures, criminal history data provide an indicator of whether the individual has had an arrest for drunk driving (DUI) or for drug use/possession. These measures are also used as indicators of risky behavior and are excluded as outcomes from the crime history measures.

Analysis

Analyses are designed to explore similarities in the offending and victimization histories, individual and structural demographic characteristics, and risk-taking behaviors of homicide offenders and victims and to compare these characteristics across victims with and without a criminal record. We compare offenders and victims using logistic regression to model the odds

of homicide offending (1) versus victimization (0) given these characteristics of interest. Significant overlap across offender and victim subgroups would be represented by an inability of measures of prior offending, prior victimization, demographics, or risk to distinguish between victims and offenders in these logistic regressions. Analyses are complicated by the fact that offenders and victims are not independent, since they are drawn from the same set of incidents. Analytically, we account for this by relying on conditional logistic regression techniques with m:n pairing on incidents. This not only corrects for the non-independence, but also for the fact that in some incidents there may be multiple offenders and/or victims. Moreover, it allows us to compare the characteristics of offenders and victims within incidents.

The exception to this strategy is when we examine differences in census block group characteristics across offender and victims residence locations. Here we are interested in whether or not offenders and victims come from similar neighborhoods. Lifestyle/routine activities theory would suggest that offenders and victims come from and interact in generally disorganized areas populated by motivated offenders and characterized by target availability and limited guardianship. In examining this assumption we use generalized estimating equations (GEE) clustered on incidents, with an exchangeable correlation matrix and a normal link function. This analysis models variation in mean percentages across census blocks on the variables in the model, while accounting for potential within group (incident) correlation on the variables of interest. We compare census block characteristics across offenders and victims.

Finally, to compare victims with and without a crime history to one another and to offenders, we conduct analysis of variance using generalized linear models (GLM). We use GLM as opposed to standard ANOVA models to account for the unbalanced distribution of victims and offenders into categories of interest (i.e., victims with a crime history, victims

without a crime history, and offenders). These models assess variation across groups in demographic characteristics, neighborhood context, and risk involvement.

Results

We begin by assessing the degree of overlap in the prior offending histories of homicide involved offenders and victims. Descriptive statistics reported in Table 1 suggest that 57% of homicide offenders have prior arrest, as do 50% of victims. However, 51% of offenders with an arrest history have been arrested for violence, compared to 39% of victims with an arrest history. So, although half of all homicide victims have a prior arrest record, they do not look as similar to offenders on this count as theoretical assertions and previous research might suggest, especially with respect to violence. Conditional logistic regression models comparing offenders to victims (conditioning on incident) confirm this (Table 1). These models suggest that, contrary to theoretical expectations, offenders in any given incident have 45% greater odds of having an arrest history than victims.

Table 1 about here

Notably, significant differences in the overall likelihood of prior arrest are not uniform once we disaggregate violent and non-violent arrests. Differences in the arrest histories of offenders and their victims are clearly attributable to the more violent histories of offenders. Offenders have significantly greater odds of having a prior arrest for violence (which holds for both lethal and non-lethal violence) than their victims. Analyses comparing prior non-violent arrests across homicide offenders and their victims are more consistent with expectations, as there are no significant differences in non-violent arrests across these two groups.

Our analyses, then, do not uniformly support the contention that offenders and victims represent an overlapping population. In general, results suggest that both homicide offenders

and victims evidence prior offending, but such histories are generally more common among offenders, especially where prior violence is concerned. The fact that half of the homicide victims in this sample have no official arrest record is consistent with recent suggestions that only some victims overlap with offender populations. We now turn to an examination of the factors that theoretical and empirical work has linked to overlapping involvement in crime across offenders and victims. Results of these analyses may help clarify some of the divergence and account for the similarities in criminal involvement noted above.

Demographic, structural and behavioral factors have all been implicated in offender/victim overlap. We begin by examining demographic correlates. Within group characteristics of offenders and victims indicate that both offenders and victims are overwhelmingly non-white males (see Descriptive Statistics in Table 2). Comparisons of demographic characteristics across offender and victim groups are largely consistent with expectations of overlap. Conditional logistic regression results reported in Table 2 indicate similarities in the distribution of sex and race across victims and offenders. There are also similar proportions of juvenile victims and offenders between the ages of 15 and 18 years old. However, there is some evidence of demographic divergence as results indicate that offenders are significantly more likely to fall in the 18 to 29 age group than are victims, and victims are significantly more likely to fall into the over 30 age group than are offenders. These results again suggest notable similarities as well as some divergence across offenders and victims.

Table 2 about here

The significant age differences across offenders and victims may be a function of the fact that demographic measures are not always an adequate proxy for shared lifestyles, opportunities, and risk preferences: the factors hypothesized to most directly affect offending and victimization

(Mustaine and Tewksbury, 1998a, 1998b, 2000). Table 3 reports results from generalized estimating equations comparing the structural characteristics of the census block groups where offenders and victims reside. Results suggest that offenders and victims come from similar neighborhoods. Aside from the finding that the census blocks where offenders live have more one-person households than those where victims live, offenders and victims come from very similar environments. Moreover, compared to Bernalillo County more generally, offenders and victims live in areas with structural features that offer more criminal opportunities, lower guardianship, and more exposure to motivated offenders (see Table 3). Lifestyle/routine activities theory, deterrence theory, and cultural theories would all implicate these factors as central to violence involvement. While the percent of individuals who are single or never married is higher in Bernalillo County than in the areas where homicide victims and offenders live, the percentage of vacant and renter occupied units and one-person households as well as the percent of residents who are young adults, males, unemployed, undereducated, and impoverished are all higher in the areas where offenders and victims live and where their homicides occur than is the case in Bernalillo County as a whole. These results square well with theoretical expectations, suggesting that regardless of demographic profiles, offenders and victims live in areas that are characterized by structural disadvantages that serve to decrease guardianship, generate criminal motivation, and increase criminal opportunities via exposure to criminal others.

Table 3 about here

However, a number of theories would suggest that, these features, in and of themselves, do not cause crime, rather, only some of the exposed to the criminal opportunities generated in these environments will likely act on such opportunity. Consistent with this argument, we

anticipate that offenders and victims in the sample should exhibit evidence of risky and/or traumatic experiences indicative of a traits or stressors that might increase their likelihood of violence involvement. We use hospital and arrest data to examine behavioral overlap across offender and victim populations. In particular, we compare hospital emergency department usage and visit characteristics as well as mental health diagnoses. We also examine evidence of prior drug use/possession and DUI from arrest data.

Conditional logistic regression models examining health and arrest related measures of prior involvement in high-risk behaviors suggest that, consistent with expectations, the risk profiles of homicide offenders and their victims are very similar (Table 4). Overall, close to 40% of offenders and more than 30% of victims accessed health care services through the University of New Mexico Hospital system. Of these, the vast majority (86% of offenders and 85% of victims who accessed hospital services) were seen in the emergency department on at least one occasion. While general health care and emergency department usage in and of itself does not necessarily reflect a high-risk lifestyle, over half of the emergency department visits by offenders and victims are injury-related, many of which resulted from an assault or gunshot. The timing of these visits relative to the homicide incident further emphasizes their high-risk nature. As documented in Figure 2, visits to the emergency department among offenders and victims increase dramatically in the 6 months preceding their homicide involvement. This suggests that, among offenders and victims who access health care through UNMHSC, there is an escalating involvement in high-risk behaviors immediately preceding their involvement in a homicide incident.

Table 4 about here

Figure 2 about here

Evidence of risky behavior patterns among homicide offenders and victims is also documented via their mental health histories and their substance use related arrest histories. While psychiatric and drug use diagnoses are relatively rare, conditional logistic regression models indicate that such diagnoses are equally likely across offenders and their victims with health care records. Low rates of psychiatric diagnoses in the sample do not necessarily mean that this population is relatively free of psychiatric or substance use problems, but that they rarely seek medical services and/or accrue diagnoses in connection with these problems (at least through UNMHSC). Arrest data suggest that substance use may be a greater problem among this group than is evidenced through hospital billing records. Overall, more than 40% of offenders and victims with a prior arrest have at least one arrest for drug possession or use. In addition, a substantial minority of victims who have an arrest history have a DUI arrest on their record (35%). Conditional logistic regression analyses show DUI arrests to be significantly less common in the arrest histories of offenders compared to victims in a given incident. Still, 19% of offenders with an arrest record had a prior DUI arrest.

These results again document similarities across homicide offender and victim populations. Among those who accessed UNMHSC services, their visit characteristics are not only similar, but also suggestive of a risky lifestyle given the rates at which these individuals use emergency services and seek treatment for injury-related problems. Moreover, substance use among this population, while rarely serious enough to warrant medical attention, does lead to drug related arrests for over 40% of offenders with an arrest history. DUI arrests, while significantly less likely among offenders, also indicate that substance use is a larger problem than UNMHSC billing data indicate.

Clearly our results indicate significant overlap across offender and victim populations. However, it is important to note that a number of victims do not evidence the key measures of risk examined here. In particular, the majority of victims (54%) do not have a prior arrest history. While 43% of offenders also have no evidence of prior arrest, their involvement in the homicide constitutes an official record. As such, the population of victims with no arrest record may represent a distinct group, which differs significantly from the offender population, and more importantly, from the rest of the victim population. Building on the work of Mustaine and Tewksbury (2000) and Klevens et al. (2002), we compare victims with no crime history to victims with a crime history (hereafter victim/offenders) and to offenders. We anticipate that this population of victims will differ from both the rest of the victims and from offenders more generally in terms of personal characteristics and social context. Consistent with previous studies, these analyses suggest significant variation across victims with and without a criminal record (Table 5). Post-hoc subgroup comparisons indicate that victims without a prior arrest are significantly younger than victim/offenders (Comparison group A; Table 5). Notably, those victims without a record are, on average 29 years old; clearly old enough to have amassed a record, and, indeed, significantly older than the offender population. Victims without a criminal record are also less likely to be male and Hispanic, and more likely to be White than victim/offenders. The social contexts in which these two groups of victims live also vary, with victim/offenders coming from neighborhoods with fewer one-person households, but also a more impoverished and less educated population than the victims with no crime history. In other words, the victims with no criminal record come from areas with more limited guardianship (which may help explain their vulnerability), but fewer conditions that would lead to criminal motivation. It is also of interest to note that the victims without a criminal record are

significantly less likely to utilize health services. While the low utilization precludes analysis of variance across utilization patterns that speak more clearly to risky lifestyles, it is suggestive of variation in risk involvement across these groups. Further suggestive of this is that the victim/offenders were significantly more likely to be away from home when killed than are the victims with no prior record. Though, victims without an offending history are no less likely to be killed by firearms or to be killed at night, suggesting that even for these victims, their homicide is associated with some risk exposure. While some of these differences may reflect biases in arrest practices and/or access to health care as a function of race/ethnicity and class, the consistency between these findings and those reported elsewhere (Klevens et al., 2002; Mustaine and Tewksbury, 2000) suggest the need to further explore the possibility that the characteristics, ecological context, and risk behavior of homicide victims are not uniformly overlapping with those of homicide offenders.

Reinforcing this conclusion, analyses suggest that the similarities evidenced between victims and offenders more broadly are muted when we compare victims without an offending history to offenders (comparison group B; Table 5). Offenders are younger than non-offending victims, and, like the victim/offender, they are more likely to be male and to come from neighborhoods that provide more significant exposure to motivated offenders via higher percentages of impoverished and undereducated residents. Moreover, as is the case with the victim/offender, the offenders are more likely to have a health care utilization record and to have been away from their homes when the homicide incident occurred. It is important to note that, while victims without a crime history differ from victim/offenders and offenders in similar ways, the victim/offenders also differ in some respects from the offender group (comparison group C; Table 5). This suggests that there may be a distinction between offenders with a victimization

history (i.e., victim/offenders) and those without. We do not have access to the victimization histories of offenders to tease out this potential variation, but it suggests an important avenue for future study.

Discussion and Conclusions

The victimization literature acknowledges that the risk of criminal victimization is not randomly distributed across the population (Miethe and Meier, 1994; Mustaine and Tewksbury, 2000). In fact, not unlike offending rates, victimization rates are highest among young, minority, males and are inflated in socially disorganized areas, leading to the suggestion that offenders and victims are, in fact, overlapping populations (Dobrin, 2001; Lauritsen et al., 1991; Mustaine and Tewksbury, 2000; Wolfgang, 1958). This interpretation is bolstered by consistent evidence documenting a history of offending and/or risk taking behavior among crime victims (Bjarnason et al., 1999; Daday et al. 2005; Dobrin, 2001; Esbensen and Huizinga, 1991; Jensen and Brownfield, 1986; Kellerman et al., 1993; Klevens et al., 2002; Lauritsen et al., 1991; Sampson and Lauritsen, 1990; Zhang et al., 2001). This body of research has generally been grounded in lifestyle routine activities and self-control theories, which combined, suggest that individuals with low self-control exhibit high-risk lifestyles and activity patterns that draw them to criminogenic environments and increase their chances for criminal involvement as both an offender and a victim. While these explanations are sensible, as noted in the introduction, numerous criminological theories offer an implicit explanation of this overlap. We make no attempt here to prioritize one explanation over another; rather, we examine whether the general theoretical expectation regarding victim/offender overlap extends to homicide and whether this overlap is evident among all victims or only a particular subset of victims.

In the final analysis, our data paint a complex picture of the relation between homicide offender and victim populations. Focusing on a set of homicide incidents, and comparing offenders to their victims within these incidents, we see some notable differences in their age profiles and in their prior arrest patterns that challenge previous conclusions from victimization data regarding shared demographic characteristics and offending histories among offenders and victims (Dobrin, 2001; Lauritsen et al., 1991; Sampson and Lauritsen, 1990). Nonetheless, our findings suggest that despite these differences, and consistent with theoretical expectations, offenders and victims engage in similar kinds of non-violent offending behavior, live and travel within similarly disadvantaged areas and, where there is evidence of risky behavior patterns, these patterns are similar across offenders and victims. This echoes findings reported by researchers examining offender/victim overlap among individuals involved in non-lethal violence (Daday et al. 2005; Sampson and Lauritsen, 1990; Zhang et al., 2001). These findings are particularly notable because rather than using general populations samples (e.g., victimization surveys) that compare victims to non-victims and note similarities between these comparisons and similar comparisons between offenders and non-offenders, we compare victims and offenders directly. Hence, the observed overlap is not speculative. Our findings confirm not only that, in the aggregate, victims generally look like offenders on a number of counts, but also that at the incident level victims share numerous demographic, structural, and behavioral patterns with their offenders.

Despite evidence to support victim/offender overlap, our findings certainly do not suggest that all victims are also prior or potential offenders. In fact, given that the majority of victims have no offending history, we support recent arguments that more theoretical and empirical attention should be paid to distinctions within victim populations (Klevens et al., 2002; Mustaine

and Tewksbury, 2000). Indeed, analyses that disaggregate victims based on whether or not they have a crime history suggest notable variation across demographic characteristics and structural contexts of victims without a crime history compared to victim/offenders and offenders.

Moreover, there is some evidence to suggest higher risk involvement (in the form of health care utilization records and traveling to homicide incidents) among the victim/offenders and offenders as compared to the victims with no criminal record. Future research should explore this with better risk measures. In addition, our findings suggest the need to explore in greater detail those incidents where offenders and victims are indeed overlapping victim-offender populations, as compared to those where offenders and victims represent distinct populations. In particular, are certain types of homicides (for example gang or drug-related homicides) more likely to involve overlapping victim-offender groups, while others (for example domestic/intimate partner homicides) more likely to involve victims and offenders who are empirically distinct groups? Moreover, our findings suggest that as there is variation across victims with and without a crime history, so too might there be variation across offenders with and without a victimization history.

While our findings point to important directions for future empirical research, they can also inform theoretical accounts of violence. Similarities between offenders and victims in this sample suggest overlap in the etiologies of offending and victimization that, while consistent with the bulk of criminological theory, is largely overlooked in theoretical discussions and empirical research. We would suggest that theories need to pay more attention to the role of victimization in the etiology of offending. At the same time our results confirm that victimization and offending are, at least partly, unique processes and victim populations do not uniformly overlap with offender populations. While numerous theories can help make sense of the overlap across these populations, there is little theoretical discussion of the conditions under

which victim and offender populations would be more or less divergent. This seems like an important step towards understanding the vulnerabilities that presage victimization, especially where traditional measures of structural disadvantage, risk behavior, and criminal involvement do not appear to be operative. In the end, our results indicate some overlap and some divergence among offenders and victims, calling for more complex theoretical treatment of the relation between offending and victimization.

It is important to note that our data provide only a limited glimpse into the offending backgrounds and risky behaviors of homicide offenders and victims. These individuals may have offending histories not captured in the Bernalillo County criminal history database. Even more restricted is our risky lifestyle measure, which is based on health care utilization and drug/alcohol offense data. These proxies capture extreme risk behaviors that bring people into contact with the health care and/or criminal justice system, but exclude the more common measures of risk captured by self-report data. Moreover, our health care utilization data come exclusively from the county's only public health care facility. While UNMHSC represents the only Level 1 trauma center and the only public health care facility in the County, using this as our only source provides a conservative estimate of risk as captured via health care utilization among this sample. The relatively low rates of health care utilization (31% of victims and 38% of offenders accessed UNMHSC services in the 3 years preceding the homicide) may suggest that individuals access other health care providers (or do not seek medical services at all) for less serious health-related concerns and only access UNMHSC for more serious emergencies and traumas, which are high among those who do show up in the UNMHSC system. Of course, it is this sort of usage we are most interested in here because of its association with high-risk

behavior. Nonetheless, data from a broader range of local health care providers would have been preferable.

Beyond the theoretical advancements that can be accrued with more research directed towards understanding the sources and specific nature of victim/offender overlap in both lethal and non-lethal violence, there are important policy implications that can stem from this line of work. Evidence of overlap across victim and offender populations suggest that violence reduction efforts may be able to target individuals following violent victimization and utilize proactive strategies (e.g., counseling, anger management, mental health assessment/treatment, drug/alcohol abuse treatment, job training/placement services) to reduce the likelihood of future offending, rather than relying solely on the reactive strategies that typically follow offending (e.g., arrest, incarceration). The finding that emergency department utilization increases among both offenders and victims in the months leading up to the homicide incident suggests a unique window for such interventions. Notably, work by Crandall et al. (2004) indicates that not only do homicide victims and offenders have similar patterns of emergency department usage, these patterns are notably distinct from those of a set of matched controls with no evidence of homicide involvement. To the extent that overlap among offender and victim populations extends to homicide, violence prevention policies and programs targeting offenders and victims could impact not only general rates of violence but also homicide rates in particular. Targeting individuals following a victimization experience may be more fruitful, than traditional interventions in response to offending behavior for two reasons. First, individuals may feel more vulnerable after a victimization experience and be more receptive to intervention efforts in the context of this vulnerability. Second, unlike interventions following offending behavior, which may be interpreted as a form of punishment, interventions following a victimization experience

are more likely to be seen as arising out of general concern for the victim's future safety and well-being (Rapp-Paglicci and Woodarski, 2000). This message might seem especially forceful if victims were warned of a concrete link between risky lifestyles, criminal involvement, and an increased risk of homicide victimization.

At the same time, evidence of variation across victims in risk behavior and criminal involvement would suggest that intervention strategies for victims need to take into account potentially distinct pathways to victimization among different subgroups of victims. Not all victims are equally likely to be involved in offending and intervention efforts should be sensitive to the nature, causes, and consequences of distinct victimization experiences. On the one hand, more effort should be devoted to identifying the characteristics of high-risk individuals who access emergency services to facilitate intervention with this population. At the same time, more research is needed to identify the sources and indicators of variation across victims to facilitate efforts to tailor violence prevention efforts so that they meet the distinct needs of these different groups.

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Table 1. Conditional Logistic Regression Models Comparing the Arrest and Victimization Histories of Homicide Offenders and Victims

	Descriptive Statistics		Regression Results	
	Offenders % (N)	Victims % (N)	Odds Ratio	95% Confidence Interval
Any Arrest History	57.0 (215)	49.5 (159)	1.38*	1.02 / 1.87
<i>Type of Arrest History¹</i> (given any prior arrest)				
Violent	51.2 (110)	39.0 (62)	1.64*	1.07 / 2.49
<i>Homicide</i>	10.7 (23)	5.0 (8)	2.35*	1.02 / 5.42
<i>Non-Lethal Violence</i>	49.8 (107)	38.4 (61)	1.60*	1.04 / 2.42
Non-Violent	60.0 (129)	52.8 (84)	1.32	0.87 / 2.00

* p<.05

Table 2: Conditional Logistic Regression Models Comparing Demographic Characteristics of Homicide Offenders and Victims

	Descriptive Statistics		Regression Results	
	Offender % (N)	Victim % (N)	Odds Ratio	95% Confidence Interval
<i>Sex</i>				
Male	84.6 (319)	81.3 (261)	1.24	0.83 / 1.85
<i>Age</i>				
Under 18	15.1 (57)	12.5 (40)	1.21	0.78 / 1.57
18-29	58.9 (222)	43.0 (138)	1.86*	1.37 / 2.52
30 +	26.0 (98)	44.5 (143)	0.45*	0.33 / 0.62
<i>Race</i>				
Hispanic	49.4 (173)	50.5 (154)	0.94	0.69 / 1.28
White	34.9 (122)	33.1 (101)	1.10	0.79 / 1.53
Black	12.3 (43)	10.2 (31)	1.23	0.75 / 2.05

* p<.05

Table 3. Generalized Estimating Equations Clustered on Incidents: Comparisons Across and Within Neighborhood of Residence and Incidence for Homicide Offenders and Victims²

Block Group Characteristics	Bernalillo County ³	Offender Residence		Victim Residence
		Mean	Mean	Z-score
<i>Low Guardianship</i>				
% Vacant Housing	7.6	9.7	9.6	0.30
% Renter- Occupied Housing	36.3	42.7	40.8	1.51
% One Person Households	28.4	31.1	28.5	2.18*
<i>Opportunity</i>				
% Male	48.8	50.2	49.4	1.57
% 18-29	17.5	20.5	20.0	0.83
% Divorced/ Never Married	42.6	38.4	38.0	0.54
<i>Exposure to Motivated Offenders</i>				
% Unemployed	3.8	9.1	8.9	0.42
% Less than 8 th Grade Education	6.0	14.4	13.4	1.50
% in Poverty	13.7	24.7	23.2	1.56

* $p \leq .05$

Table 4: Conditional Logistic Regression Models Comparing Behavioral Indicators of Low Self-Control Across Homicide Offenders and Victims

	Descriptive Statistics		Regression Results	
	Offenders % (N)	Victims %(N)	Odds Ratio	95% Confidence Interval
Any UNM Health Sciences Center (UNMHSC) Visit	34.5 (130)	34.3 (110)	1.02	0.75 / 1.40
<i>Visit Types⁴</i>				
(Given any UNMHSC visit)				
ED visit	86.2 (112)	85.5 (93)	1.18	0.57 / 2.43
<i>ED Visit Characteristics</i>				
(Given any UNMHSC visit)				
Any Injury-related visit	50.8 (66)	57.3 (63)	0.76	0.46 / 1.28
Assault-injury visit	14.6 (19)	18.2 (20)	0.80	0.40 / 1.60
Firearm-injury visit	8.5 (11)	2.7 (3)	2.83	0.77 / 10.49
<i>Mental Health Diagnoses</i>				
(Given any UNMHSC visit)				
Psychiatric diagnosis (non- substance abuse)	13.8 (18)	14.5 (16)	0.96	0.46 / 2.00
Alcohol Abuse Diagnosis	10.8 (14)	14.5 (16)	0.72	0.33 / 1.56
Drug Abuse Diagnosis	9.2 (12)	3.6 (4)	2.52	0.78 / 8.09
<i>Arrests for Risky Behaviors</i>				
(Given any arrest history)				
Drug Use/Possession Arrest	44.7 (96)	42.8 (68)	1.06	0.70 / 1.61
Drunk Driving Arrest	18.6 (40)	35.2 (56)	0.42*	0.26 / 0.67

* $p \leq .05$

Figure 1: Database Linkage Strategy

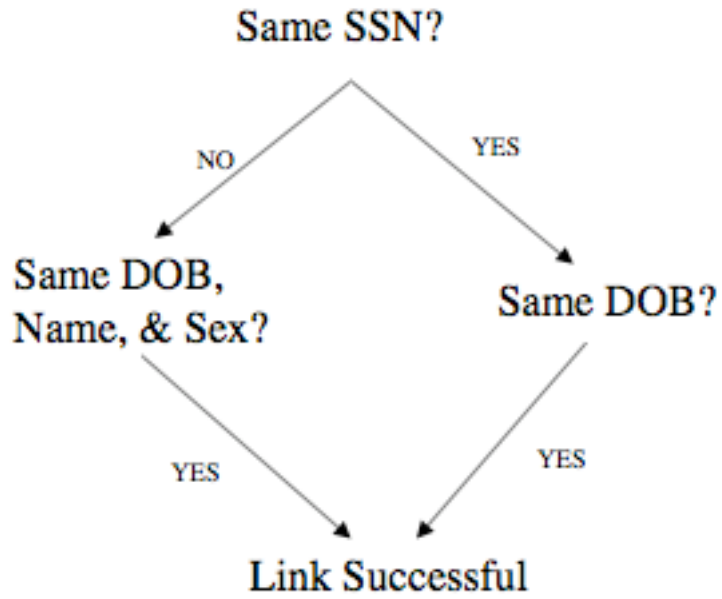
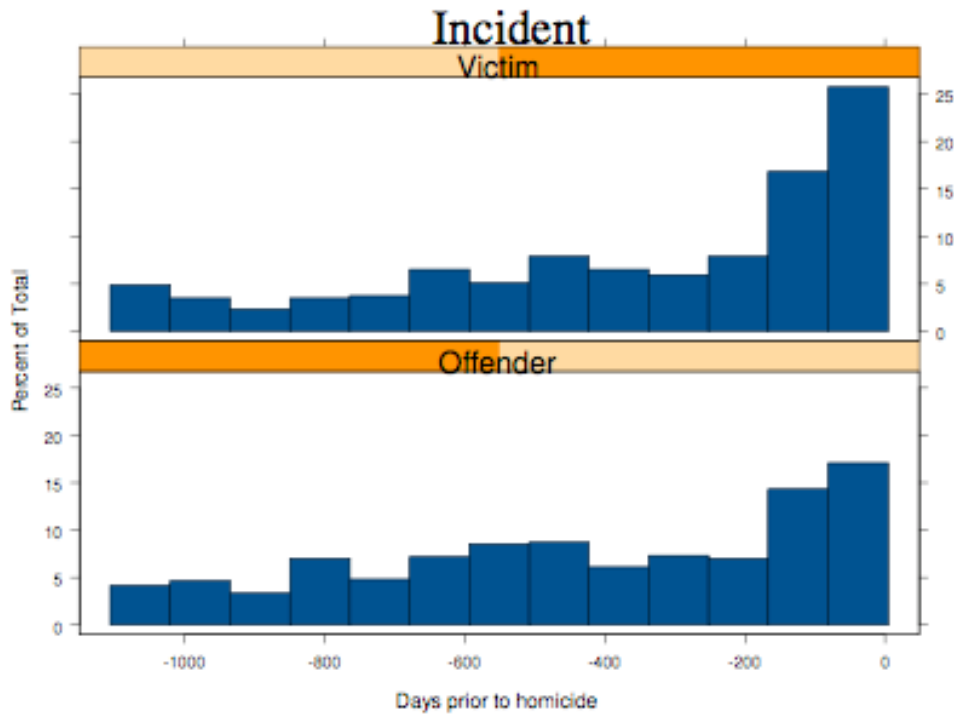


Figure 2: ED Utilization Prior to the Homicide



Note: visits within 7 days of the homicide incident are excluded from these calculations to ensure that the visits represented in this graphic are not directly related to the homicide incident itself.

ⁱ We code all individuals arrested in connection with a given homicide as “offenders.” Incidents with multiple offenders are more common than incidents with multiple victims. The average number of offenders in the 245 incidents for which at least one person was arrested is 1.6 (with a minimum of 1 and a maximum of 9). The average number of victims in a given incident is 1.1 (with a minimum of 1 and a maximum of 4).

ⁱⁱ We were able to identify intimate partner homicides using information provided to us from the State’s Domestic Violence Death Review Team, which works with the Office of the Medical Investigator to identify and track all Intimate Partner homicide cases. Of the 332 homicide incidents, 6% (N=20) were intimate partner homicides.

ⁱⁱⁱ We exclude Domestic Violence incidents here because there is legitimate reason to believe that the dynamics of these incidents are distinct and that expectations regarding victim/offender overlap might not extend to these cases. In particular, Avakame (1998) finds that domestic homicides differ substantially from stranger homicides and suggests that they warrant separate treatment. While it would be nice to be able to compare these domestic homicides to the remainder of homicides, the limited number of DV cases precludes comparative analysis.

We also exclude those under 15 (3 offenders and 17 victims). Here our concern is that many of these cases also reflect family violence and therefore, a dynamic more similar to the domestic incidents than the remaining incidents. Moreover, we are interested in the relation between prior offending and risk histories and victimization/offending, and those under 15 have generally not accrued the kinds of official histories (both criminal and health care) that older individuals have, thus artificially inflating estimates of divergence.

^{iv} We conducted all analyses using the full sample (including domestic violence homicides and children), these analyses lead to similar conclusions as those reported here (results are available from the author), but the inclusion of these cases complicates interpretations of contrary outcomes, as it becomes unclear whether divergence across victims and offenders is attributable to family violence or some other factor.

^v Underestimation is most likely for individuals who have moved to or from the County, but we have no reason to suspect any systematic bias across offenders and victims in this or any other potential source of underestimation.

^{vi} It is important to note here that there are some significant differences across arrestees and suspects. Demographically, there are no significant differences in mean age (25.4 for arrestees and 26.0 for suspects) or in percent non-white (66.5% of arrestees and 63.1% of suspects) but there are significantly more female suspects compared to arrestees (19% vs 12%). And, while arrestees and suspects are equally likely to link to the UNMHSC database (34 % of arrestees and 35% of suspects), arrestees are significantly more likely to have an arrest history than are suspects (63% of arrestees vs 49% of suspects). Despite these differences, analyses were run using only the arrestees and results are identical to those reported here using both arrestees and suspects in our offender category.

^{vii} We use block group as opposed to tract level data since it reflects a smaller level of aggregation and should more closely mirror the individual’s structural environment.