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Emergency Department Utilization among Victims and Offenders Involved in Non-Lethal Violence

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ABSTRACT

The medical literature has focused on violent victimization as a public health concern, examining its correlates and evaluating intervention models. However, the emphasis on victimization in this literature overlooks the strong ties between victimization and offending risks outlined in the criminological literature, which may unnecessarily limit the scope of public health efforts to influence violence in our communities. This study examines whether the similarities observed in the criminological literature are evident in a health care setting. More specifically, do victims and offenders exhibit similar health care utilization patterns? We address this question by comparing the emergency department utilization records, criminal histories, and demographic characteristics of a sample of victims and offenders involved in non-lethal violence in Bernalillo

County, New Mexico in 2001. Our results suggest that victims and offenders have similar ED utilization patterns, with most visits being for injury. Moreover, most victims seen in the ED have criminal records that, in many ways, mirror those of offenders. The results suggest that violence intervention programs in public health settings should target both victims and offenders and capitalize on the overlap across these populations in outlining the long term risks of criminal involvement and motivating individual level change.

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Introduction

Violence has been identified as a public health concern, with empirical research documenting the risk factors associated with intimate partner violence (IPV) and child abuse as well as evaluating public health interventions to reduce these victimization risks (Pridemore 2003). However, this emphasis on victimization generally overlooks the strong ties between victimization and offending risks, which may limit public health efforts to influence violence in our communities. The criminological literature documents substantial overlap between victimization and offending. This overlap, if similarly evident among violence-involved populations in health settings, suggests that intervention efforts need not focus exclusively on victimization. Moreover, to the extent that victimization and offending are not independent, efforts that target victimization exclusively may have limited impact.

Theoretical and empirical work in criminology has shown that violent offenders are overwhelmingly male, young, minority, have an offending history, and live in socially disorganized neighborhoods (Nagin and Paternoster 2000; Sampson, Morenoff, and Gannon-Rowley, 2002). Several theories try to make sense of these patterns, including, strain/general strain, social disorganization, social learning and control theories. These explanations suggest that these patterns reflect individual level responses to disadvantage and/or deficits in socialization, behavioral monitoring, or social support.

Since the 1970s, criminologists have examined more closely the risk factors associated with victimization using Hindelang, Gottfredson and Garofalo's (1978) lifestyle-theory and Cohen and Felson's (1979) routine activity theory, which suggest that victimization risks are linked to individual behavior patterns. Cohen and Felson suggest that criminal incidents occur when there is a convergence in time and space of a suitable target, a willing offender, and a lack

of capable guardianship. Unstructured and unsupervised activities coupled with risky lifestyles, such as substance use, bring together willing offenders and suitable victims in criminogenic environments. In support of theoretical expectations, subsequent research has discovered that factors associated with violent offending, such as being male, minority status, young, and having a prior offending history, are also associated with violent victimization (Daday, Broidy, Crandall & Sklar 2005; Jensen and Brownfield 1986; Lauritsen, Sampson, & Laub 1991; Sampson and Lauritsen 1990).

While the overlap of offending and victimization is well documented in the criminological literature, this overlap is not well recognized in the health literature. Health care settings are an important locus for violence intervention efforts with an estimated 2.1 million Americans visiting emergency departments (ED) in 2001 for violence related injuries (Vyrostek, Anest & Ryan, 2004). Violence reduction interventions occur in hospitals, health care clinics, EDs, and trauma centers (Moscovitz, Degutis, Bruno, & Shriver, 1997) and begin by screening patients for violence related injuries through surveys, interviews, and social work consultations. Physicians and nurses play an important role in identifying and documenting abuse, helping victims obtain the medical care necessary to meet their physical and emotional needs, and contacting law enforcement officials to report violent incidents. As a result, violence interventions have focused on victims of intimate partner violence (Krasnoff & Moscati, 2002), child abuse (Litaker, 1996) and violence among adolescents (Sege, Stringham, Short, & Griffith, 1999).

Although health care based interventions have largely focused on violent victimization, it is likely that these victims exhibit risk factors for violent offending as well (Buss and Abdu, 1995). Some research illustrates that, similar to victims of violence, offenders also utilize the

health care system for a variety of medical needs and appear to be over-represented among those who present with trauma and injury (Conseur, Rivara, & Emanuel, 1997; Sege et al., 1999).

Given the similarities between victims and offenders and evidence of both offending and victimization among at risk individuals, one might posit that ED based violence interventions should address both the consequences of victimization and the factors that motivate offending when targeting violence-involved populations. A necessary first step is to assess the extent of overlap or divergence in the ED utilization histories of victims and offenders in violent crimes. This study addresses this issue by comparing a sample of victims and offenders involved in non-lethal violent crimes in a large southwestern city of the United States.

Methods

We retrospectively assessed criminal histories and emergency department (ED) utilization among a cohort of victims (N=2,687) and offenders (N=2,644) involved in the same aggravated battery incidents in Bernalillo County, New Mexico in the year 2001. For each victim and offender, we obtained ED utilization histories at the University of New Mexico Health Sciences Center (UNM-HSC), the only public hospital in Bernalillo County and the only level one trauma center in the state. Local law enforcement agencies provided official crime histories, demographic characteristics, and personal identifiers for each victim and offender. Criminal history data included arrest dates and charges since 1970. We created several dichotomous measures for the presence or absence of various violent crimes, property crimes, and drug use/possession arrest charges in each individual's criminal histories. We found a crime history for 30.3% of the victims (N = 882) and 31.5% of the offenders (N = 845) in the sample.

Using personal identifiers, we linked victims and offenders to the UNM-HSC electronic physician-billing database to obtain their known ED utilization. Using the International Classification of Disease 9th Version Clinical Modification (ICD-9CM), we created a dichotomous measure for any ED visit in the three years preceding the 2001 aggravated battery incident. We found ED utilization histories for 18.6% of the victims (N = 503) and 17.7% of the offenders (N = 470). For those with a utilization record, we created dichotomous measures for various visit characteristics, such as trauma, assault, gunshot wound (GSW), alcohol, drug, and mental health visits.

Several data limitations should be noted. First, our sample of victims and offenders is based on reported incidents for one year in one city. Second, the health care utilization is based on ED records from one hospital in one city. While this hospital is the only level one trauma center in the state and the only public hospital in the county, victims and offenders may have visited other medical institutions. Third, crime history data are limited to offenses known to law enforcement resulting in an arrest. Finally, crime histories are limited to the local jurisdiction and do not include arrests made in other New Mexico counties or in other states. Therefore, the data sources used in this study potentially undercount total criminal histories and medical utilization for an unknown number of the victims and offenders included in the sample.

Analyses

In Table 1, we compare victims (coded as a 0) and offenders (coded as a 1) using odds ratios with confidence intervals derived from logistic regression analyses. Column 1 compares all of the victims (N=2,687) and all of the offenders (N=2,644) in our initial sample. In Column 2, we compare victims (N=822) and offenders (N=845) who possessed a criminal history record

in Bernalillo County, New Mexico before the 2001 aggravated battery incident. Finally, in Column 3, we compare victims (N=503) and offenders (N=470) who possessed an ED utilization record at UNM-HSC within the three-year period preceding the 2001 aggravated battery incident. There are approximately 390 individuals, or 22.5% of our sample, who are included in Columns 2 and 3 because they possessed an ED utilization record and a criminal history record. In our analyses, odd ratio values above 1.0 represent characteristics more common among offenders in the sample, and conversely, values below 1.0 are characteristics more common among victims. Odds-ratio values that are statistically significant ($p < .05$) are noted in each of the columns in Table 1.

Table 1 About Here

The results in Column 1 show that among our entire sample, victims and offenders differ significantly based on their sex, race/ethnicity, and criminal histories. Though men are more likely to be offenders and victims, there are significantly more male offenders than male victims. Hispanics and other non-whites are also more likely to be offenders than victims. Significant differences exist based on their crime histories as well, with aggravated assaults, aggravated batteries, domestic violence arrests, drug use/possession arrests, firearm enhancement charges, robberies, and burglaries all more prevalent in the backgrounds of offenders than victims.

While these findings highlight clear differences, the victims and offenders do not significantly differ in their ED use or their ages. ED visits related to injury, trauma, and mental health diagnoses are more common among victims than offenders, but these differences are not statistically significant. Moreover, while ED visits related to assaults, gunshot wounds, and alcohol are more common among offenders, these differences are also not statistically significant. The results suggest that victims and offenders obtained ED care in similar

proportions and for similar types of visits. The one exception applies to ED drug related visits, which are more common among victims than offenders.

Next, we disaggregate our sample and focus our analysis on those individuals who had a crime history in Bernalillo County. As noted above, 30.1% of the victims (N = 882) and 31.5% of the offenders (N = 845) had a known crime history in Bernalillo County prior to the 2001 aggravated battery incident. Among this population, the patterns exhibited in Column 2 are similar to those presented in Column 1 for the entire sample. Again, men are significantly more likely to be offenders than victims. Offenders are also more likely to have arrests for aggravated assaults, aggravated batteries, domestic violence, drug use/possession, firearm enhancements, and robberies. However, victims are significantly more likely to have DUI arrests than offenders. While this relationship was not statistically significant in Column 1, it appears that among those individuals with a crime history, a DUI arrest history is more strongly associated with subsequent victimization than offending. As prior research has noted, a victimization experience can be associated with increased levels of stress or pressures, subsequently leading to drug and alcohol abuse. Conversely, drug and alcohol abuse suggest involvement in risky lifestyles and activities, which place individuals in proximity to known offenders, increasing their victimization risks (Rich and Gray, 2005; Stewart, Schreck, and Simons 2006).

Although victims and offenders with crime histories significantly differ in the extent of their crime histories, there are no clinically important differences in their race/ethnicities, ages, and most importantly, in their ED utilization. The lack of differences suggests that victims and offenders with criminal histories seek medical care in the ED in similar proportions and for similar needs.

In Column 3, we compare the 18.6% of the victims (N=503) and the 17.7% of the offenders (N=470) who had an ED utilization history in the three-years preceding the aggravated battery incident. Again, there are more male offenders than victims, and other minority groups are more likely to be offenders compared to whites. Column 3 also shows that for those with an ED utilization record, drug use/possession arrests are more common among offenders than victims. In the previous two columns, offenders showed significantly more diverse crime histories than victims. In contrast, victims and offenders with an ED history do not significantly differ with respect to the type of crimes they are involved in. Many of the odds ratios remain above 1.0, suggesting offenders are more likely to have been arrested for each of these offenses; however, the differences are not statistically significant. It is possible that if we possessed a larger sample of victims and offenders, these odd ratios would be statistically significant.

Similar to Columns 1 and 2, victims and offenders with an ED utilization record do not significantly differ in their ages and ED visit patterns. Among those with an ED history, 58.8% of the victims and 60.0% of the offenders visited the ED for an injury related diagnosis, and 59.6% of the victims and 60.2% of the offenders had a trauma related visit in the ED. Similar patterns exist among the remaining ED utilization variables, clearly showing no statistically significant differences between these two groups. Victims and offenders visited the ED for very similar medical needs in the three years leading up the aggravated battery incident.

Based on the results in Columns 1-3, victims and offenders are clearly similar in many ways, especially in their ED utilization histories. However, these two groups mainly differ based on their sex (Columns 1-3) and criminal histories (Columns 1 and 2 only), as offenders are more likely to be male and to have more extensive criminal histories than victims. Since men commit violent crimes and are arrested at higher rates compared to women, the larger proportion of men

in the sample relative to women may influence the differences between victims and offenders in their criminal histories. To account for the observed sex differences as well as the known sex differences in criminal involvement, we stratified our analyses by sex and compared 1) male offenders with male victims, and 2) female offenders with female victims. The results of these analyses showed that among both male and female sub-samples, emergency department utilization patterns are similar for victims and offenders.

Discussion

Considerable efforts have been successful in framing violence as a public health problem, identifying risk factors associated with violence, developing interventions, and evaluating their effectiveness (Pridemore, 2003). Perhaps rooted in a tradition of helping the sick and vulnerable, medical and public health practitioners and researchers have focused most of their efforts on the victims of violence, generally overlooking offenders. With increased interest among health care providers to intervene and reduce violence, it is important to recognize the overlap of victims and offenders. Our research examines the similarities and differences of a sample of victims and offenders involved in non-lethal interpersonal violence and concludes that the perceived distinction between victims and offenders in the public health literature may be unwarranted.

In our sample (Column 1), victims and offenders had similar emergency department utilization histories at the UNM-HSC, and we obtained similar results when we compared victims and offenders with a crime history (Column 2) and those with an ED utilization history at UNM-HSC (Column 3). Moreover, victims and offenders had similar ED utilization histories when we disaggregated our sample by sex, comparing male victims with male offenders and comparing female victims with female offenders. The results clearly suggest that victims and

offenders in violent crime seek out medical services in emergency departments in similar proportions and for similar medical needs.

Research has established that victims and offenders look similar on many counts, particularly with respect to their criminal histories, a finding reinforced here. In addition to being equally likely to exhibit arrest histories, victims and offenders access the ED at similar rates and display virtually identical utilization patterns, suggesting that that victims and offenders who access emergency services are at high risk for both offending and victimization. Intervention efforts in health care settings should acknowledge this overlap. Such efforts need to recognize that, among the consequences of victimization is an increased risk of offending; conversely, increased offending activity is associated with a higher risk of victimization. This is particularly important since our results suggest that many offenders and victims present to the health care system *without* a history of criminal justice involvement. Only 30% of victims and offenders who have a record of ED utilization also had an arrest history beyond the selection event (the incident for which they were selected into the sample).

Emergency department and hospital based violence intervention programs range from screening, brief intervention and referral to treatment (SBIRT) style programs to more complex, multidisciplinary and resource intense programs that incorporate substance abuse, job training and family development services. While there is a dearth of research to establish the effectiveness of violence intervention programs, there is evidence that SBIRT efforts reduce problem drinking (Bazargan-Hejazi et al., 2005) and by extension, violence involvement. Cooper, Eslinger & Stolley (2006) recently demonstrated that a resource intense program for violence-involved admitted trauma patients can reduce both criminal and health care adverse outcomes.

Emergency physicians and nurses provide urgent and primary care services in addition to the emergency services they are trained to perform. While busy and resource limited, emergency departments and emergency medicine training programs can take concrete steps to improve the SBIRT and similar efforts to curb future violence involvement of at-risk groups (Bernstein et al., 2007). In the long run, these steps may be worth the resource investment as they could reduce ED utilization among violence-involved populations.

One specific intervention method with proven efficacy is the technique of motivational interviewing, particularly with drug abuse, alcohol addiction, and risky sexual behaviors (Miller & Rollnick, 2002). Motivational interviewing is designed to provide non-threatening, empathetic, non-judgmental, and supportive interaction between the patient and the practitioner. First, health care practitioners conduct a brief assessment of patients to identify individuals engaged in risky lifestyles or activities. Next, they help patients connect the reason for their health care encounter with their problem behavior and empower patients' to make appropriate changes in their lives. Patients receive advice and viable service options from the practitioners, which may include social service resources (for example, education services and job readiness training) or healthcare resources (mental health and/or addiction treatment resources).

As our findings suggest, victims and offenders involved in violent crime engage in risky lifestyles and behaviors, including drug and alcohol use in addition to presenting at the ED for injuries, assaults, and trauma related visits. Physicians, nurses, and social workers should employ motivational interviewing by focusing on individuals who evidence these risk factors and who are seeking medical services in the ED setting. It remains to be demonstrated whether SBIRT programs for violence have efficacy to reduce violence involvement. The ED setting provides an opportunity to educate at risk groups and to provide them with alternatives to a life

of risky behaviors and activities before they confront the more authoritative elements of the criminal justice system as an offender or a victim in a violent crime. Interventions in this setting might be able to curb offending before it comes to the attention of the criminal justice system, saving individuals from some of the deleterious effects of arrest and incarceration.

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Table 1: Comparison of Victims and Offenders Involved in Aggravated Battery Incidents in Bernalillo County, New Mexico in the Year 2001

Covariates	Column 1		Column 2		Column 3	
	O.R.	C.I.	O.R.	C.I.	O.R.	C.I.
Demographic Characteristics						
Men	1.87*	1.67-2.09	1.88*	1.50-2.37	1.76*	1.35-2.29
Women (Reference)	1.00		1.00		1.00	
Hispanic	1.19*	1.05-1.34	0.97	0.79-1.20	1.02	0.77-1.35
Other Minority Groups	1.48*	1.25-1.75	1.32	0.97-1.80	1.69*	1.16-2.46
White (Reference)	1.00	1.00-1.00	1.00	1.00-1.00	1.00	1.00-1.00
Age (OR & CI in 10 year Increments)	1.09*	1.05-1.14	0.90*	0.81-0.99	0.96	0.87-1.06
Emergency Department Utilization						
ED History Record	0.94	0.82-1.08	0.81	0.63-1.04	---	---
All Cause Injury	0.97	0.81-1.15	0.75	0.51-1.12	1.05	0.81-1.36
Assault Injury	1.11	0.84-1.48	0.95	0.55-1.65	1.21	0.89-1.65
Firearm Injury	1.42	0.45-4.47	1.10	0.22-5.51	1.50	0.47-4.75
Alcohol Related Visit	1.03	0.73-1.44	0.83	0.73-1.62	1.09	0.76-1.56
Drug Related Visit	0.48*	0.23-0.99	0.54	0.13-2.20	0.50	0.24-1.03
Mental Health Related Visit	0.81	0.51-1.25	0.63	0.28-1.40	0.83	0.53-1.32
Official Criminal Histories						
Criminal History Record	1.06	0.94-1.19	---	---	0.88	0.67-1.16
Homicide	1.01	0.38-2.70	0.97	0.36-2.60	2.34	0.21-2.60
Aggravated Assault	1.35*	1.09-1.68	1.35*	1.06-1.71	0.87	0.48-1.58
Aggravated Battery	1.38*	1.14-1.68	1.42*	1.14-1.77	1.63	0.97-2.74
Domestic Violence	1.53*	1.21-1.92	1.56*	1.22-2.00	1.26	0.68-2.32
Rape	1.71	0.92-3.19	1.66	0.89-3.11	2.39	0.59-9.72
DUI	0.89	0.76-1.05	0.79*	0.65-0.97	0.69	0.42-1.12
Drug Use/Possession	1.38*	1.14-1.68	1.43*	1.15-1.77	1.66*	1.01-2.74
Firearm Enhancement	1.70*	1.20-2.40	1.68*	1.17-2.40	1.83	0.80-4.23
Robbery	1.43*	1.03-1.99	1.41*	1.00-1.98	2.28	0.88-5.89
Burglary	1.24*	1.01-1.52	1.23	0.98-1.54	1.17	0.68-2.02
Larceny	1.06	0.85-1.33	1.02	0.80-1.31	0.69	0.37-1.30

* = $p < 0.05$

Column 1: Comparison of all Victims (N=2,687) and all Offenders (N = 2,644)

Column 2: Comparison of Victims (N=822) and Offenders (N = 845) with a known criminal history

Column 3: Comparison of Victims (N=503) and Offenders (N = 470) with a known medical utilization history