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Premeditated *versus* "passionate": patterns of homicide related to intimate partner violence

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ABSTRACT

Background: Intimate partner violence (IPV) is prevalent but underrecognized; at least 25% of United States women experience IPV within their lifetime. We examined the most severe consequence of IPV by exploring the patterns of death from IPV in a statewide database of homicide victims.

Materials and methods: This is a retrospective review of the Colorado Violent Death Reporting System from 2004 to 2015. Deaths were coded as IPV if the primary relationship between the suspect and victim fell into the following categories: spouse, ex-spouse, girlfriend/boyfriend, and ex-girlfriend/ex-boyfriend.

Results: We identified a total of 2279 homicide victims, with 295 cases of IPV homicide (12.9%). The majority was female victims of a male partner ($n = 240$, 81.4%). In nearly half of these ($n = 108$, 45%), the male suspect subsequently died by suicide as part of the same incident. These homicide-suicide incidents were more likely than homicide alone to involve a spousal relationship, more likely to involve firearms and less likely to involve intoxication or preceding arguments. They had a distinct demographic profile from other victims of IPV, mirroring suicide victims in terms of race and estimated income.

Conclusions: These results indicate that there are two distinct groups of female IPV homicides, and recognizing this distinction may allow for the development of more effective trauma prevention strategies. Homicide-suicides showed a more premeditated pattern while homicide alone suggested a crime of passion, with a smaller proportion of firearm deaths and higher rates of positive toxicology findings and preceding conflict in the latter group.

Introduction

Intimate partner violence (IPV) is alarmingly prevalent and takes many forms, including physical, emotional, and sexual abuse. Although men can be victims, IPV predominately affects women. Nearly one in four women in the United States will experience IPV within her lifetime, between 1.5% and 8.0% of women experiencing interpersonal violence during the past year.[1] IPV is even more common among trauma patients, again affecting both men and women. One multi-institutional study

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of universal screening for IPV in trauma patients found that 16.1% of women had experienced IPV in the past year alone, with significant variability between centers (15.3%-50.0%).[2] Another study estimated IPV to represent between 5% and 30% of all female trauma admissions.[3]

Even when IPV is not the cause of the current trauma admission, trauma patients are more likely to have experienced recent IPV than the average population. In one study of 95 female trauma patients seen at a level 1 trauma center, 46% endorsed a lifetime history of IPV and 20% endorsed IPV in the past year.[4] However, only two women reported that their current injuries were due to an assault from an intimate partner. Although there is almost certainly underreporting of IPV as a cause for trauma admission, it is likely that IPV is also associated with other risk factors for trauma overall, including substance abuse and mental health issues. Indeed, this same study found that the risk of past-year IPV was rare when neither partner was a problem drinker, intermediate when either the female victim or the male perpetrator only was a problem drinker, and very high when both partners were problem drinkers.[4] In one study, nearly half of female trauma patients who reported past-year IPV also self-reported a personal history of mental illness.[5] Another study found that one-third of trauma patients who reported IPV in the past year also screen positive for trauma recidivism (i.e., recent hospital visit for trauma).[2] These results highlight the unique position that trauma surgeons can play in screening and prevention of IPV and its consequences.[6]

Homicide is the most severe consequence of IPV, and approximately 70% of women who are ultimately killed by an intimate partner were physically abused by the perpetrator before their deaths.[7,8] Nearly half of all female homicides are the result of IPV, and homicide represents one of the leading causes of premature death for women in the United States.[7,9] Most of these homicide victims never survive to be seen by a physician, although many have contact with the medical community before this event.[8,10] In light of this, prevention is the dominant strategy to reduce IPV homicide. To better understand the problem of IPV in our trauma population and to identify opportunities for identification and prevention, we examined patterns of death from IPV in a statewide database of homicide victims.

Materials and methods

This study is a retrospective review of the Colorado Violent Death Reporting System (CoVDRS) data from years 2004 to 2015. This database includes details of all violent deaths occurring in the state of Colorado or to residents of the state of Colorado including homicides, suicides, accidental firearm deaths, and undetermined deaths that may be violent in nature. This study falls into the category as exempt by the Colorado Multiple Institutional Review Board.

CoVDRS is part of the National Violent Death Reporting System, an active surveillance system funded by the Centers for Disease Control and Prevention. The system is active in 40 states, the District of Columbia, and Puerto Rico, providing a census of all violent deaths occurring in those regions.[11] The program uses the following definition of violent death (from the World Health Organization): "a death resulting from the intentional use of physical force or power against oneself, another person, or against a group or community". The information in the database relies on information collected by trained data abstractors from death certificates, coroner and medical examiner records, and law enforcement reports. The database includes demographic information about the victims, any identified suspects, and circumstances of the death.

Victims in CoVDRS with a manner of death specified as "homicide" were identified from the database. Deaths were determined by the abstractor to be homicides if a preponderance of evidence based on the death certificate, legal documentation, and coroner medical examiner documentation determined that someone used lethal force against the victim. For the purposes of this study, the relationship between the victim and the primary suspect was used to identify victims of IPV. Deaths were categorized as being the result of IPV if the primary relationship between the suspect and victim fell into one of the following categories: spouse, ex-spouse, girlfriend or boyfriend, ex-girlfriend or ex-boyfriend, and girlfriend or boyfriend unspecified if current or ex. Cases with more than one suspect were excluded from the study, so as to only include cases where there was a high likelihood of IPV being the cause of death.

Socioeconomic variables including median household income are not included in CoVDRS reporting. For this reason, we used the census tract of residence for each victim in CoVDRS to link to socioeconomic data available at the census-tract level from the 2008 to 2012 American Community Survey. The household income of each victim was estimated as the median household income for the census tract of residence for that victim (also called area-based income estimate).[12] Despite an imperfect approximation from population-level variables to individual-level variables, census-tract level data are more discrete than zip code or regional data used in prior studies and are regarded as a reasonable way to estimate these factors.[12]

The R Project for statistical computing was used for all data analysis. Unpaired *t*-tests were used for comparison of continuous variable statistics, with a *P* value of less than 0.05 representing significance. When comparing proportions, a Pearson chi-square test was used except where the prevalence was less than 5%, in which case a Fisher's exact test was used. In the case of bivariate categorical variables, a Yates' continuity correction was used for the chi-square test.

Results

A total of 14,886 cases were included in CoVDRS for the years 2004-2015. Of these, a total of 2279 cases were identified as homicide cases (Fig. 1). There were a total of 308 total cases of possible IPV identified from all homicides; 13 cases were excluded due to the presence of multiple suspects, leaving 295 cases (12.9% of all homicides) where the single suspect was a former or current intimate partner. Within this IPV cohort, there were at total of 240 female victims of a male partner (81.4%), 42 male victims of a female partner (14.2%), eight male victims of a male partner (2.7%), and one female victim of a female partner (0.3%). In addition, there were four female