



Fatalities related to intimate partner violence: towards a comprehensive perspective

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ABSTRACT

Background In 2015, 1350 people in the US were killed by their current or former intimate partner. Intimate partner violence (IPV) can also fatally injure family members or friends, and IPV may be a risk factor for suicide. Without accounting for all these outcomes, policymakers, funders, researchers and public health practitioners may underestimate the role that IPV plays in violent death.

Objective We sought to enumerate the total contribution of IPV to violent death. Currently, no data historically report on this problem.

Methods We used Violent Death Reporting System (VDRS) data to identify all IPV-related violent deaths in North Carolina, 2010–2017. These included intimate partner homicides, corollary deaths, homicide-suicides, single suicides and legal intervention deaths. We used the existing IPV variable in VDRS, linked deaths from the same incident and manually reviewed 2440 suicide narratives where intimate partner problems or stalking were a factor in the death.

Results IPV contributes to more than 1 in 10 violent deaths (10.3%). This represents an age-adjusted rate of 1.97 per 100 000 persons. Of the IPV-related violent deaths we identified, 39.3% were victims of intimate partner homicide, 17.4% corollary victims, 11.4% suicides in a homicide-suicide event, 29.8% suicides in a suicide-only event and 2.0% legal intervention deaths.

Implications If researchers only include intimate partner homicides, they may miss over 60% of IPV-related deaths. Our novel study shows the importance of taking a comprehensive approach to prevent IPV and decrease violent deaths. IPV is a risk factor for suicide as well as homicide.

The term ‘intimate partner’ refers to a person with whom there is or has been a close personal relationship characterised by emotional connectedness, regular contact, ongoing physical contact and/or sexual behaviour.¹ This definition includes opposite-sex and same-sex relationship dating partners, spouses, exes, as well as cohabitating and non-cohabitating partners.³

Intimate partner homicide

In the US, more than half of female homicide victims are killed by a current or former intimate partner.⁴ Data from the National Violent Death Reporting System (VDRS, 2003–2014) indicate that young women, particularly racial/ethnic minority women, are disproportionately affected by IPH.⁵ About 10% of male homicide victims die by IPH, compared with 55% of female homicide victims.⁴

Corollary victims

IPV may also lead to the deaths of family members, friends or new intimate partners.⁶ Decedents killed in IPV-related incidents who are not the intimate partners are ‘corollary victims’.⁷ Data from the VDRS suggest that for every four victims of IPH, there is an additional corollary victim.⁶ Over three-quarters (76.4%) of corollary victims are male, many are family members or new intimate partners.⁶ Corollary victims also include young children. Of the family members who die in an IPV-related conflict, over a third (38%) are children aged 11 or younger.⁶

Homicide-suicide

Sometimes when an individual commits IPH, they will die by suicide as part of that incident. Data from North Carolina (NC, 2004–2013) suggest that one in four IPH perpetrators (24.8%) die by suicide within 24 hours.⁸ Individuals who commit IPH-suicide are almost always men (95%–97%), frequently use firearms (88%–91%), are often married, cohabitating or recently separated from their intimate partner, and are often underemployed/unemployed.⁹

Suicide (in the absence of homicide)

There is less information about the overlap between IPV and suicide in the absence of a related homicide. There is, however, a plausible link. IPV perpetration and suicidal ideation are strongly correlated,¹⁰ and perpetrators sometimes use suicide threats to manipulate and control their partners.^{11 12} IPV

INTRODUCTION

Intimate partner violence (IPV), defined as any physical, sexual or psychological abuse perpetrated by a current or former intimate partner,¹ affects a substantial proportion of the population. In the US 37.3% of adult women and 30.9% of adult men have experienced non-lethal IPV during their lifetime.² Abuse can also precipitate homicide, suicide or other violent fatality. Researchers investigating the contribution of IPV to violent deaths have focused primarily on intimate partner homicide (IPH). While IPH is an urgent concern, IPV may also result in other types of violent deaths. Without taking other violent outcomes into account, we may underestimate or misrepresent the full role that IPV plays in violent death, which may lead to gaps in programmes and policies.



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victimisation may also be a precursor to suicide. The trauma of IPV and the stressors related to managing an abusive relationship can take a toll on survivors' mental health. A recent national study found that heterosexual women who had experienced physical IPV were seven times more likely to report suicidal ideation than women who had not experienced physical IPV.¹³ Extant research, however, has not fully explored the association between surviving IPV and dying by suicide, nor the association between perpetrating IPV and dying by suicide.

Legal intervention deaths

During an IPV incident, a victim or bystander may call law enforcement to intervene. When an individual is killed by an active duty law enforcement officer, it is referred to as a 'legal intervention death'.¹⁴ About one in seven legal intervention fatalities (13.9%) are related to IPV.¹⁴

Purpose of this paper

To our knowledge, there is no literature documenting the overall contribution of IPV to violent deaths. Previous research has focused on one or two death subtypes exclusively (eg, comparing IPH with IPH-suicide; counting IPH and corollary deaths), but no work accounts for all these deaths collectively.¹⁵ Enumerating all types of IPV-related violent deaths provides comprehensive evidence to guide resource allocation for IPV prevention and response. In this paper, we sought to:

- ▶ Document the overall burden of IPV-related violent deaths in NC and characterise commonalities across decedents.
- ▶ Describe the prevalence and characteristics associated with each subtype of IPV-related deaths, including two homicide subtypes (IPH victims and corollary victims), two suicide

subtypes (homicide-suicide decedents and suicide-only decedents) and legal intervention deaths.

METHODS

We used data from the NC Violent Death Reporting System (NC-VDRS), which is part of the VDRS, an enhanced public health surveillance system that is funded and maintained by the US CDC. NC-VDRS records detailed information on all violent deaths that occur in the state, including homicides, suicides and legal intervention deaths. Trained abstractors review records that are collected from law enforcement, toxicology, medical examiner reports and death certificates, from which data are summarised and compiled.

NC has been collecting VDRS data since 2004,⁴ and has a record of consistent, high-quality data collection, using the codebook adopted by all VDRS funded states. NC is also a large state that may have comparable rates of IPV-related violent deaths with national rates. In 2017, female IPH (in single victim/single offender incidents) occurred nationally at a rate of 1.29 per 100 000 people, nearly identical to the NC reported rate of 1.23 per 100 000.¹⁶ Reporting practices in NC and the US VDRS may also reflect surveillance and coding practices in other high-income nations.¹⁷ Thus the implications of this novel study may extend beyond the US.

VDRS captures victim characteristics (eg, age, race/ethnicity, sex), manner of death (eg, homicide, suicide) and precipitating circumstances. VDRS includes incident-level information regarding whether an incident included a single death or multiple deaths. Deaths share the same incident identifier (ID) if the deaths occurred within 24 hours of each other and involved the same people (eg, victim was killed by the suspect who then died by suicide that same day).

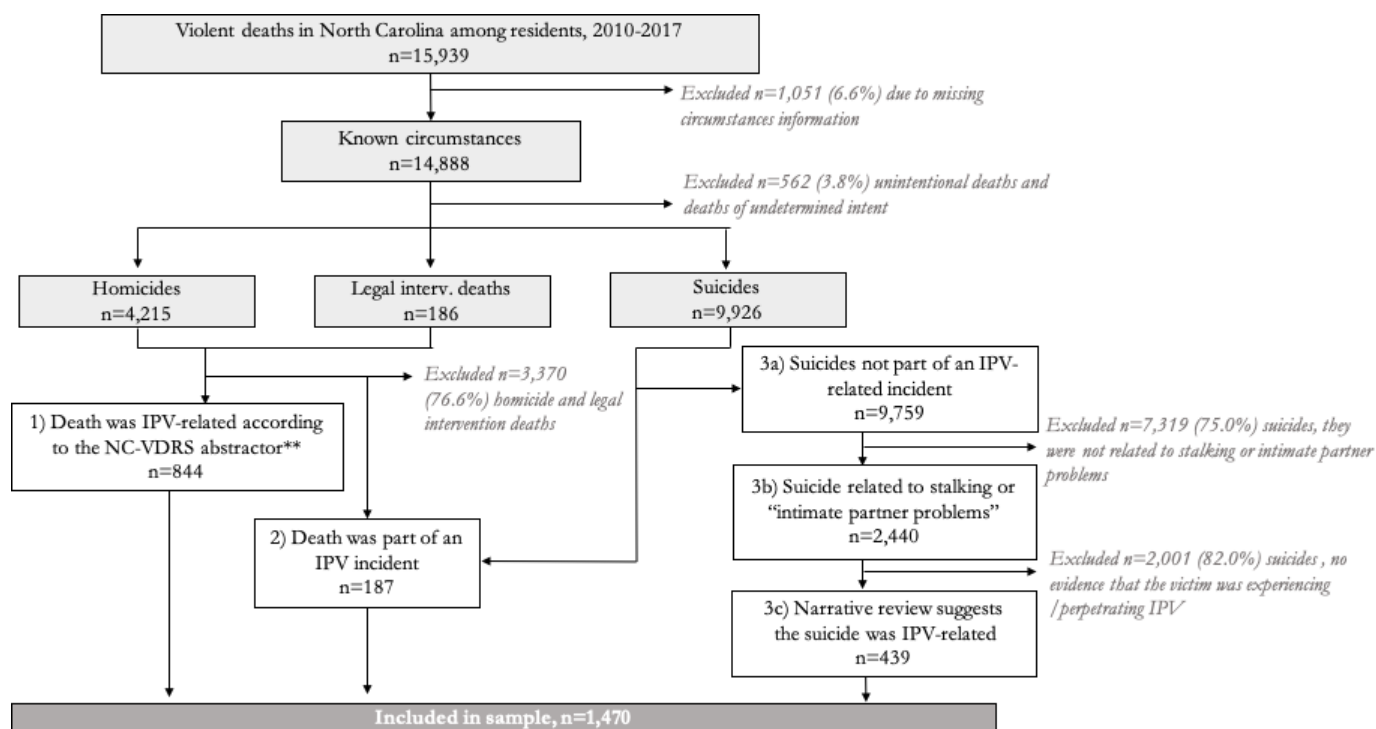


Figure 1 Case identification inclusion criteria. **Not counting mercy killings, unless narrative review suggested that they were IPV-related. Mercy killings are defined in the CDC's VDRS codebook as a situation when '[the] victim was killed, at the victim's request, out of compassion in order to end his or her pain or distress' (p102).³ While mercy killing may be carried out by an intimate partner, we did not count this as IPV-related death unless there were other evidence to suggest that other abusive behaviour had been ongoing. IPV, intimate partner violence; NC-VDRS, North Carolina Violent Death Reporting System.

Table 1 Case narrative excerpts exemplifying victim types

Type of death	Definition	Case narrative examples (excerpted)
Homicide victims		
IPV victim	Decedent was killed by a current or former intimate partner.	<i>The victim was a middle-aged female who had been strangled in her home by her husband.</i>
Corollary victim	Decedent was not in the abusive relationship themselves but was killed during an IPV-related event.	<i>The victim was a male with a gunshot wound to the neck. The victim was at his girlfriend's home when her ex-husband (suspect) arrived. The ex-husband reportedly threatened to kill the girlfriend. According to the girlfriend, the victim rushed at the suspect and the suspect fired shots, killing the victim.</i>
Suicide decedents		
Homicide-suicide decedent	Decedent committed IPH or another IPV-related homicide and then died by suicide as part of the same incident (within 24 hours).	<i>Victim 1 was in a parked vehicle outside her residence with her estranged husband (suspect/victim 2) who shot her in the chest and then himself in the head. They both died before EMS arrived on the scene.*</i>
Suicide-only decedent	Decedent was involved in an abusive relationship and went on to die by suicide (but did not commit homicide directly before the suicide event).	<i>The (male) victim was found inside his home with a self-inflicted gunshot wound. The victim had been arguing with his wife just prior to the shooting. She stated the argument escalated and the victim choked her. She escaped and locked herself in the bathroom. He tried to break in and then she heard a gunshot.</i>
Legal intervention decedents		
Lethal force by law enforcement	Decedent was killed by active duty law enforcement during an IPV-related conflict.	<i>Male decedent was found lying in the street with multiple gunshot wounds. Deputies had been dispatched after the decedent's estranged wife called the police about his threatening behavior. She had taken out a protective order against him a week prior. When law enforcement encountered this individual, he began firing at the deputy. The deputy returned fire, striking the man and fatally wounding him.</i>

Details have been changed or obscured to protect decedents' identities.

*Suspect/victim 2 is the homicide-suicide decedent. Victim 1 is an IPH victim.

EMS, emergency medical services; IPH, intimate partner homicide; IPV, intimate partner violence.

Sample identification

We examined all in-state violent deaths among NC residents between 2010 and 2017 where circumstantial information was recorded (n=14 326). We included all violent deaths where there was evidence to suggest that the decedent had been in an abusive relationship, either as a victim or perpetrator, based on information gleaned from quantitative variables and narrative review. We excluded deaths with unknown circumstances, deaths of undetermined intent or unintentional deaths, as recommended by the CDC.³ Figure 1 depicts our sample identification process.

To assemble our sample, we first used the IPV variable that is recorded by NC-VDRS abstractors. According to the CDC coding manual, the IPV variable 'identifies cases in which the homicide or legal intervention [death] is related to immediate or ongoing conflict or violence between current or former intimate partners' (p80).³ It is important to note that the IPV variable is only used for homicide or legal intervention deaths. We included additional deaths that shared the same incident ID with a known IPV-related fatality in NC-VDRS. This allowed us to identify homicide-suicides or multiple homicides.

Because the IPV variable is not routinely coded for suicides, we performed a manual review of all single suicides where abstractors indicated that the death was related to 'intimate partner problems' (IPP) or stalking (n=2440). The IPP and stalking variables are two separate circumstances variables which are distinct from the IPV variable. The IPP variable indicates that 'problems with a current or former intimate partner appear to have contributed to the suicide' (p81).³ The IPP variable is used in situations where the suicide decedent experienced conflict or distress in a romantic relationship, whether it be a break-up, a divorce, an argument, or in some cases IPV.

The CDC coding manual indicates that 'intimate partner problems' identified by the IPP variable do not necessarily constitute IPV. As such, four authors reviewed and coded 2440 suicide narratives where stalking or IPP was present. We used a yes/no designation to indicate whether each suicide was IPV-related. We used the CDC's definition of IPV and modified the

coding framework proposed by Brown and Seals.¹⁸ To establish inter-rater reliability, all coders coded 50 suicide narratives independently. After reaching agreement on the presence/absence of IPV in these 50 narratives, we assigned the remaining cases evenly among coders, while randomly assigning 10% of narratives to a second coder to assess consistency. For this 10%, the coders had substantial intercoder reliability as demonstrated by a Fleiss' kappa of 0.73. A third, tie-breaking coder resolved any discrepancies in the double-coded narratives.

Measures

Sex is reported in NC-VDRS based on the death certificate, categorised as female or male. The system has a variable for transgender individuals (added in 2013)³; however, these data are often missing. Therefore, we refer to known 'females' and 'males' but are unable to report data on gender non-conforming or transgender decedents. Additional information on the NC-VDRS variables is available in the VDRS Abstractor Codebook.³

Each IPV-related violent decedent was categorized as either an intimate partner homicide victim; a corollary victim; a homicide-suicide decedent; a suicide-only decedent; or a legal intervention decedent. Example death narratives for each subtype are included in table 1.

Analysis

We report IPV-related violent deaths both as raw counts and as age-adjusted rates per 100 000 persons. We age-adjusted to the total population of NC using the direct method.¹⁹ All narratives were coded in Microsoft Excel, and all analyses were conducted in SAS V.9.4.

RESULTS

We identified 1470 IPV-related violent deaths that occurred in NC between 2010 and 2017, indicating that 1.98 per 100 000 North Carolinians die violently with IPV as a contributing factor.

Table 2 Incidence and rates of IPV-related violent deaths in North Carolina (2010–2017)

	Counts of IPV-related violent			Age-adjusted rates (per 100 000)		
	Overall n (%)	Male n (%)	Female n (%)	Overall	Male	Female
IPH	578 (39.3)	152 (26.3)	426 (73.7)	0.77	0.42	1.11
Corollary victimisation	256 (17.4)	198 (77.3)	58 (22.7)	0.34	0.54	0.15
Homicide-suicide	167 (11.4)	159 (95.2)	8 (4.8)	0.22	0.43	0.02
Suicide (only)	439 (29.9)	357 (81.3)	82 (18.7)	0.59	0.98	0.21
Legal intervention deaths	30 (2.0)	27 (90.0)	3 (10.0)	0.04	0.07	0.00
Overall	1470 (100)	893 (60.7)	577 (39.3)	1.97	2.46	1.51

IPH, intimate partner homicide; IPV, intimate partner violence.

This represents 10.3% of all intentional violent deaths with known circumstantial information. Table 2 includes details on the crude counts and age-adjusted rates for IPV-related deaths.

Of these IPV-related violent deaths, 578 (39.3%) decedents were victims of IPH, 256 (17.4%) were corollary victims, 167 (11.4%) were suicides from a homicide-suicide event, 439 (29.8%) were suicides in a suicide-only event, and 30 (2.0%) were legal intervention deaths (figure 2). These subtypes of violent death are exclusive categories; each death is counted only once.

Table 3 describes the demographic characteristics of each subtype. While IPH victims were predominantly female (n=427, 73.75%), all other subtypes were majority male (n=741, 83.1%). White non-Hispanic individuals were the most represented racial/ethnic group for all subtypes except for corollary victims, where black non-Hispanic individuals made up nearly half (n=120, 46.9%). Corollary victims had the largest proportion of young people (n=74, 28.9% under the age of 25), many of whom were 15 or younger (n=30, 11.7%). Among adults, more corollary victims had never been married (n=77, 30.1%)

compared with the other subtypes. The main commonality across subtypes appeared to be low educational attainment; 19.7% of adults over the age of 24 had not graduated high school, as compared with 13% for the state overall.²⁰

Table 4 describes the characteristics of the incidents and the circumstances of these fatalities. Most fatal injuries occurred at a home or private residence (n=1192, 81.1%). Most often a firearm was the weapon used (n=1039, 70.7%). Firearms were used in an even higher proportion of cases for corollary deaths (n=189, 73.8%), homicide-suicides (n=161, 96.4%) and legal intervention deaths (n=30, 100.0%). Alcohol or substance use was suspected for the victim in a minority of cases (n=11, 7.6% and n=185, 12.6%, respectively), although this proportion was higher for single suicides (n=77, 17.5% and n=102, 23.2%).

DISCUSSION

IPV plays a substantial role in violent death—larger than has been previously reported. IPV contributed to 10.3% of all intentional violent deaths in NC, 2010–2017. The age-adjusted rate

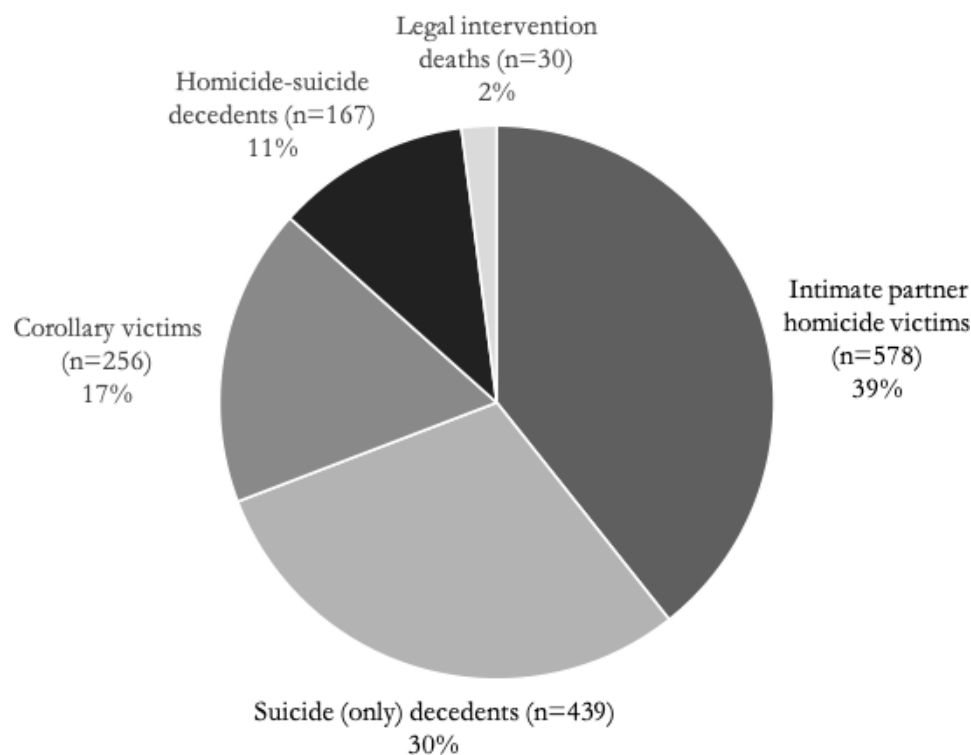


Figure 2 Subtypes of intimate partner violence-related death and their proportional representation (2010–2017). IPH, intimate partner homicide.

Table 3 Characteristics of victims in IPV-related violent deaths, North Carolina residents, 2010–2017

	Homicide victims			Suicide victims		Legal intervention decedents, n (%)
	Overall, n (%)	IPH victims, n (%)	Corollary, n (%)	Homicide-suicide, n (%)	Suicide (only), n (%)	
	N=1470	n=578	n=256	n=167	n=439	n=30
Female	577 (39.3)	426 (73.7)	58 (22.7)	8 (4.8)	82 (18.7)	3 (10.0)
Age (years)						
Under 25	213 (14.5)	76 (13.1)	74 (28.9)	8 (4.8)	50 (11.4)	5 (16.7)
25–44	699 (47.6)	284 (49.1)	113 (44.1)	67 (40.1)	225 (51.3)	10 (33.3)
45–64	439 (29.9)	173 (29.9)	49 (19.1)	64 (38.3)	139 (31.7)	14 (46.7)
Over 65	116 (7.9)	45 (7.8)	18 (7.0)	28 (16.8)	25 (5.7)	*
Unknown	2 (0.1)	*	*	*	*	*
Race/ethnicity						
White non-Hispanic	892 (60.7)	308 (53.3)	113 (44.1)	106 (63.5)	342 (77.9)	23 (76.7)
Black non-Hispanic	441 (30.0)	213 (36.9)	120 (46.9)	44 (26.3)	57 (13.0)	7 (23.3)
Hispanic	78 (5.3)	37 (6.4)	9 (3.5)	12 (7.2)	20 (4.6)	0 (0.0)
AI/AN, non-Hispanic	27 (1.8)	10 (1.7)	7 (2.7)	*	10 (2.3)	0 (0.0)
Asian, non-Hispanic	26 (1.8)	8 (1.4)	7 (2.7)	3 (1.8)	8 (1.8)	0 (0.0)
Other	5 (0.3)	2 (0.3)	0 (0.0)	*	2 (0.5)	0 (0.0)
Education†						
Less than high school	247 (19.7)	92 (18.3)	37 (20.6)	27 (17.0)	85 (21.9)	6 (24.0)
High school degree only	711 (56.7)	278 (55.4)	110 (61.1)	97 (61.0)	213 (54.8)	13 (52.0)
Greater than high school	290 (23.1)	130 (25.9)	31 (17.2)	35 (22.0)	88 (22.6)	6 (24.0)
Unknown	7 (0.6)	2 (0.4)	2 (1.1)	0 (0.0)	3 (0.8)	0 (0.0)
Marital status‡						
Married/civil union	570 (38.8)	240 (41.5)	56 (21.9)	66 (39.5)	193 (44.0)	15 (50.0)
Married but separated	70 (4.8)	26 (4.5)	3 (1.2)	8 (4.8)	31 (7.1)	2 (6.7)
Divorced	215 (14.6)	82 (14.2)	31 (12.1)	20 (12.0)	77 (17.5)	5 (16.7)
Never married	328 (22.3)	133 (23.0)	77 (30.1)	37 (22.2)	78 (17.8)	3 (10.0)
Widowed	66 (4.5)	19 (3.3)	12 (4.7)	28 (16.8)	7 (1.6)	0 (0.0)
Unknown	6 (0.4)	2 (0.3)	1 (0.4)	0 (0.0)	3 (0.7)	0 (0.0)

*Suppressed due to low counts to protect victim identity.

†Reported only for individuals aged 25 or older at the time of death (n=1255).

AI/AN, American Indian / Alaskan Native; IPH, intimate partner homicide; IPV, intimate partner violence.

of IPV-related violent death was 1.97 per 100 000 people and neared the age-adjusted rate for HIV mortality in the state (2.1 per 100 000 people).²¹

Clear patterns emerged across fatality subtypes. A higher proportion of IPH decedents were women, whereas decedents were more commonly male for all other subtypes. Corollary victims were younger, and fewer were married at the time of death. Victim alcohol or substance use was most common for suicides and legal intervention deaths.

There were also common characteristics across all subtypes. Firearms were the primary weapon in 7 out of 10 IPV-related deaths. In addition, a large proportion of adults over age 25 in our sample did not graduate from high school. Finally, most IPV-related violent deaths occurred in private homes or residences.

Implications

Consistent with previous research, IPV and violent deaths are gendered.^{22–23} Our data only contained information on biological sex. Nonetheless, women were more commonly killed by their intimate partner than men. Men more often were corollary victims, died by suicide, committed homicide and then died by suicide, or died by legal intervention. Overall our sample was majority male. Without minimising the impact of IPV for women, IPV may have notably fatal consequences for men, regardless of their status as IPV perpetrators or victims.¹⁵ Accordingly, primary prevention strategies should engage boys and men to promote

healthy relationships and recognise the negative consequences of IPV for people of all genders. Additionally, while most IPV screening protocols focus on women,^{24–25} IPV screening with men might also identify suicide and/or homicide risks.

Our findings suggest that children who live in households with IPV are at risk of corollary victimisation, which is consistent with previous research.⁶ Practitioners who work with families (eg, social workers, educators, paediatricians) should be aware of this risk and strive to ensure children's safety. IPV's impact on child deaths may also be undercounted. A recent study reviewed VDRS narratives for child homicides and found that the IPV variable in VDRS may be missing up to half of the children killed in IPV incidents.²⁶ Accordingly, children's corollary victimisation in IPV-related deaths may be larger than recorded in the present study.

Like violent deaths overall, firearms were the primary weapons in IPV-related violent deaths.⁴ Restricting access to firearms in the context of IPV is therefore an important approach to prevent multiple forms of violence, including mass shootings (many individuals who commit mass shootings have a history of IPV perpetration).²⁷ By law in the US, access to firearms can be restricted as part of a domestic violence protective order if a judge deems there is imminent threat for violence. The extreme risk protective orders operate in a similar manner. Through either mechanism, removing an IPV perpetrator's firearms may de-escalate violence and reduce access to lethal means.²⁸ Research suggests

Table 4 Characteristics of incidents and circumstances of IPV-related violent deaths, North Carolina residents, 2010–2017

	Homicide victims			Suicide victims		Legal intervention decedents, n (%)
	Overall, n (%)	IPH victims, n (%)	Corollary, n (%)	Homicide-suicide, n (%)	Suicide (only), n (%)	
	N=1470	n=578	n=256	n=167	n=439	n=30
Incident location						
House, apartment	1192 (81.1)	469 (81.1)	205 (80.1)	135 (80.8)	360 (82.0)	23 (76.7)
Street/road, alley, parking lot	70 (4.8)	28 (4.8)	17 (6.6)	10 (6.0)	10 (2.3)	5 (16.7)
Motor vehicle	68 (4.6)	28 (4.8)	16 (6.3)	4 (2.4)	19 (4.3)	1 (3.3)
Outdoors (eg, woods, park)	33 (2.2)	8 (1.4)	4 (1.6)	6 (3.6)	14 (3.2)	1 (3.3)
Other	107 (7.3)	45 (7.8)	14 (5.5)	12 (7.2)	36 (8.2)	0 (0.0)
Weapon (primary)						
Firearm	1039 (70.7)	372 (64.4)	189 (73.8)	161 (96.4)	287 (65.4)	30 (100.0)
Sharp instrument	138 (9.4)	104 (18.0)	32 (12.5)	1 (0.6)	1 (0.2)	0 (0.0)
Hanging, strangulation	162 (11.0)	46 (8.0)	9 (3.5)	2 (1.2)	105 (23.9)	0 (0.0)
Blunt instrument	34 (2.3)	18 (3.1)	16 (6.3)	0 (0.0)	0 (0.0)	0 (0.0)
Other	97 (6.6)	38 (6.6)	10 (3.9)	3 (1.8)	46 (10.5)	0 (0.0)
Alcohol dependency suspected	112 (7.6)	17 (2.9)	7 (2.7)	7 (4.2)	77 (17.5)	4 (13.3)
Other substance use disorder suspected	185 (12.6)	35 (6.1)	21 (8.2)	19 (11.4)	102 (23.2)	8 (26.7)

IPH, intimate partner homicide; IPV, intimate partner violence.

that domestic violence protective order firearm-prohibition laws are associated with a 10% reduction in IPH at the state level (1980–2013).²⁹ Accordingly, we recommend that court and criminal justice personnel be aware of promising practices for firearm restrictions with both domestic violence protective orders and extreme risk protective orders.

Notably, a large proportion of adults over age 25 in our sample did not graduate high school (19.7%), compared with the state average (13.1%).²⁰ Lower educational attainment might operate as a proxy for other adverse life circumstances and experiences such as poverty, access to resources, risky behaviours and other factors (eg, unemployment) that increase the risk for IPV and violent death.³⁰

IPV-related deaths commonly occurred in private spaces (eg, people's homes, apartments), which underscores the need for primary prevention. Private spaces are cloistered from public awareness, insulated from social norms and often lack bystanders who can intervene. To prevent IPV, the CDC recommends programmes that (1) teach young people safe and healthy relationship skills; (2) change social norms, particularly damaging gender norms; (3) create safe, stable, nurturing environments for children and youth; and (4) strengthen families' economic support.³¹ Alternative housing options are also vital for survivor safety.³² Unfortunately, there are challenges to ensuring adequate housing options for survivors, including limited funding for shelters, waitlists and inadequate facilities.³³ Greater coordination and funding for shelters are needed.

Our findings also reveal a substantial overlap in IPV and dying by suicide. While previous research has focused primarily on IPH-suicide,^{8,34} we found that single suicides were far more common. Therefore, professionals who assess IPH risk (eg, law enforcement, first responders, social workers, clinicians) should also screen for suicidality to identify and interrupt potential fatalities.³⁵ More research is needed to understand suicide risks among IPV victims compared with IPV perpetrators. Such

research can inform tailoring effective suicide prevention for those impacted by IPV.

Strengths and limitations

Although limited to one state, this study's methods have implications for the VDRS and similar surveillance systems in other high-income countries. No other research, to our knowledge, has comprehensively enumerated IPV-related violent deaths. This paper is the first to do so and provides a model for national and global efforts.

VDRS data are drawn from multiple secondary sources and only include information that is recorded officially by law enforcement, coroners or medical examiners. Information concerning IPV and other contextual factors is therefore likely under-reported, which may result in an underestimate of how these factors contribute to violent deaths. While we explored other circumstantial variables in NC-VDRS (eg, mental health history, trauma), we did not present those data due to low cell counts and missingness.

Our enumeration of the contribution of IPV to violent death is an underestimate. Many suicide narratives we reviewed were ambiguous or lacked detail. We took a conservative approach by coding IPV as present only when there was a clear description in the narrative that reached a compelling threshold of evidence. As such, our findings likely undercount the proportion of suicide cases in which the decedent had been in an abusive relationship.

CONCLUSION

IPV contributes to more violent deaths than previously recognised. Existing research to enumerate the potential years of life lost among IPH victims and corollary victims demonstrates that this tragic burden is very costly to society.³⁶ Our study suggests that the burden may be even higher. As more states and countries build capacity for violent death surveillance, we

encourage consideration of the large role that IPV may play in all violent deaths, including suicides.

Preventing IPV could substantially lower the rates of violent death. As the CDC recommends, a shared risk and protective factor approach to prevention targets the root causes of violence and prevents many negative consequences.³⁷ As such, we call for increased attention to coordinated, comprehensive, sustainable IPV prevention that spans essential service systems (eg, child protection, criminal justice, healthcare, victim services). Prevention strategies must be an integral part of a national public health agenda and must be adequately resourced. When considering the extent of life loss suggested by this study's findings, IPV prevention, response and research are likely critically underexamined and underfunded compared with other causes of death. The life loss and devastating consequences of IPV merit greater attention, research, monitoring and action.

What is already known on the subject

- ▶ Intimate partner violence (IPV) can cause fatalities.
- ▶ In the US, when women die by homicide, more than half of the time they are killed by a current or former intimate partner.
- ▶ Researchers investigating the contribution of IPV to violent deaths have focused primarily on intimate partner homicide; however, there may be other violent deaths that are not accounted for.
- ▶ The Violent Death Reporting System only records IPV as a precipitating circumstance in the case of homicides and legal intervention deaths, not suicides.

What this study adds

- ▶ IPV contributes to 10.3% of all intentional violent deaths, much higher than previously estimated.
- ▶ If researchers only count intimate partner homicides, our findings suggest that they are missing over 60% of IPV-related deaths.
- ▶ Suicides made up a substantial proportion of the IPV-related violent deaths.

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Patient consent for publication Not required.

Ethics approval This project was deemed non-human subjects research by the Institutional Review Board (IRB) of the University of North Carolina, Chapel Hill.

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Data availability statement Data are available upon reasonable request. North Carolina Violent Death Reporting System data (NC-VDRS) are housed at the North Carolina Department of Public Health in Raleigh, North Carolina. De-identified data were used for this project and provided to the study team under a Data Use Agreement (DUA) with oversight from the UNC Chapel Hill Institutional Review Board (IRB). A detailed study and data plan was submitted as part of the DUA

process. Additional details can be found at the NC-VDRS website (<https://www.injuryfreenc.ncdhs.gov/DataSurveillance/ViolentDeathData.htm>).

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