

Analysis of Domestic Violence Fatalities in Colorado 2013-2017

Capstone Project

Madison Dillon

University of Colorado Denver

Summer 2019

**Client:** Denver Domestic Violence Coordinating Council / Denver Metro Domestic Violence  
Fatality Review

**First Reader:** Dr. Wendy Bolyard

**Faculty Reader:** Dr. Angela Gover

## **Executive Summary**

In the most tragic of cases, Intimate Partner Violence (IPV) can escalate to death. In Colorado, the Denver Domestic Violence Coordinating Council (DDVCC) tracks fatality incidents related to IPV: Intimate Partner Homicide, Intimate Partner Homicide-Suicide, and Collateral Fatalities. This client-based study for the DDVCC analyzes trends among 152 fatality cases from 2013 through 2017, using the most recently available datasets from the Denver Metro Domestic Violence Fatality Review (DMDVFR). The results of this study indicate four key findings. First, men are more likely than women to perpetrate IPV fatalities, and perpetrators are significantly older on average than victims. Second, firearms are the most common weapon used in IPV fatality cases, resulting in 129 of the 210 total deaths over the five-year period. Results revealed that children were involved in a quarter of all fatality incidents, most commonly as an on-scene witness, which can result in traumatic psychological consequences. The second most common type of child involvement was as a collateral fatality. Finally, although the broader literature suggests IPV fatalities increase with rurality of a county, results of this study indicate that the urban, populated counties in Colorado were more likely to be the setting of an IPV-related fatality. Going forward, the DMDVFR, under the auspices of the DDVCC, should consider working with child fatality review boards to conduct deeper levels of analysis of child fatalities. The DDVCC should consider reorganizing datasets to clearly present incident-level information and incorporate data concerning individual fatalities. In addition, variable labels should align with IPV-fatality literature. In 2019, Colorado made state policy strides to decrease gun-related fatalities. With this study as a benchmark, the client may compare future IPV fatality data against the results of this study and identify whether current policies increase protection for victims by decreasing incidents of gun-related fatalities.

### **Analysis of Domestic Violence Fatalities in Colorado 2013-2017**

Intimate Partner Homicide (IPH) and Intimate Partner Homicide-Suicide (IPH-S) are grave public health concerns in Colorado and nationwide. IPH and IPH-S involve the death and/or suicide of intimate partners, but they can also lead to the collateral deaths of children, family members, friends, and first responders. Organizations have attempted to prevent these tragic fatalities associated with intimate partner violence (IPV) by tracking these cases and analyzing data to produce research-backed risk factors called “Red Flags” as well as make recommendations for state and federal policy (D. Larson, personal communication, February 4, 2019).

One such organization is the Denver Domestic Violence Coordinating Council (DDVCC), the client for this study. This organization initiated the Denver Metro Domestic Violence Fatality Review (DMDVFR) in 1995 to collect, track, and analyze data on IPV-related fatalities, including collateral deaths. This Denver Metro-based group includes four Colorado Judicial Districts encompassing five counties (Denver, Adams, Arapahoe, Jefferson and Douglas) and is responsible for compiling IPV-related fatality data in Colorado and conducts formal Domestic Violence Fatality (Case) Reviews (DVFRs). More recently, they are also assisting in the formation of other Domestic Violence Fatality Review Teams (DVFRT) throughout the state. The purpose of a DVFRT is to bring together a diverse group of experts to review closed cases of IPV-related fatalities and detect common risk factors by applying the Red Flags Checklist. This Checklist, created by the DMDVFRT is a tool that service providers, and other professionals, can administer to victims to help identify their risk for experiencing IPH (D. Larson, personal communication, February 4, 2019). Case review findings also have the potential to inform policy and practice changes that may result in the prevention of future domestic violence related fatalities.

In 2017, the state of Colorado established the Colorado Domestic Violence Fatality Review Board (CDVFRB) within the state Department of Law under the Colorado Attorney General. Colorado statute now codifies the creation of annual DVFR reports, which will be produced in collaboration with the DDVCC (Colo. Rev. Stat. §24-31-702, 2017). However, the DDVCC is a small organization that administers the DMDVFR and cannot produce more than its annual review without additional resources. This study will expand on their work by investigating domestic violence fatalities in Colorado from 2013 through 2017, based on the organization's most recent datasets.

### **Purpose**

The purpose of the current study is to identify recent trends in Colorado IPV fatality data. The client is interested in this analysis because DDVCC, through the DMDVFR, is a key stakeholder who helps identify areas for progress in the Colorado public sector via policy recommendations and for direct services to IPV victims. The client is specifically interested in data concerning the involvement of children in these cases. First, relevant literature provides context on the current study and justifies the methodology. Then, methodology introduces research questions and hypotheses, describes the measurement and collection procedures, addresses validity and reliability concerns, and identifies the methods used for data analysis. Following this section, results are presented and subsequently interpreted in a discussion and synthesized with recommendations for the client and future research. Brief limitations and a conclusion are provided along with relevant appendices.

### **Literature Review**

Although Intimate Partner Homicide (IPH) and Intimate Partner Homicide-Suicide (IPH-S) cases represent a fraction of the very widespread phenomenon of Intimate Partner Violence

(IPV), they are very serious threats to public safety across the United States. The Centers for Disease Control (CDC) estimates that one in six murders are committed by an intimate partner (CDC, 2018). Females face a disproportionate share of this burden, with 40-50% of all female homicides (also known as femicides) committed by the victim's current or former intimate partner (Petrosky et al., 2017). According to Campbell et al. (2007), women are murdered nine times more by intimate partners than by strangers. Homicides committed by intimate partners are characteristically different from non-intimates because IPH involves relationship dynamics that are not present in non-intimate homicides. (Campbell, Glass, Sharps, Laughon, & Bloom, 2007). In 2016, the 962 females murdered nationally by an intimate partner accounted for *over half* of all femicides (When Men Murder Women, 2018). During 2017, there were an estimated 592 total cases of homicide-suicide in the United States, 65% of which involved an intimate partner. In 96% of these cases, the homicide victim was female (Langley & Berkson, 2018).

Racial minority populations also experience a disproportionate amount of violence, as African American and Native American women have the highest rates of femicide (Petrosky et al., 2017). Petrosky et al, (2017) also found that the largest proportion of femicides were committed against African American, Native American, and Hispanic victims 18 to 29 years old. It is important to consider that fatalities from IPH and IPH-S are not limited to the intimate partners. An IPV fatality may encompass collateral deaths of children, new intimate partners, family members, parents of the victim, and others (Meyer & Post, 2013). When IPV escalates to IPH, there are lethal consequences for women and the people around them. It is important to consider that the number of women who die without specific categorization or determination of IPH could be quite high.

### **The Involvement of Children**

Beyond the death of the primary victim, one of the most tragic consequences of IPH is the involvement of children. Researchers conservatively estimate that 3,300 children in the United States are affected by IPH each year (Lewandowski, McFarlane, Campbell, Gary, & Barenski, 2004). In the worst of cases, children can be collateral homicide victims, either killed in the crossfire protecting a parent or the victim of an intentional familicide, in which the perpetrator murders the entire family (Jaffe & Juodis, 2006). In a large systematic review of 17 local and state DVFR datasets from the U.S. and Canada, 95 child deaths occurred within the 1,006 IPH incidences examined, representing 9% of total fatality cases (Jaffe, Campbell, Hamilton, & Juodis, 2012). However, some smaller fatality reviews list higher rates of child deaths. For example, a review by the Arizona Coalition Against Domestic Violence reported that 16% of Arizona's 98 IPH fatality cases between 2005 and 2008 involved the death of a child (as cited in Jaffe et al., 2012).

In other circumstances, children's lives are spared, but they are victimized in a way that forces them to live with an extremely traumatic experience. Children might witness a parent's murder or discover the body after the incident (Jaffe & Juodis, 2006). In these cases, the child's experience of loss is "compounded", losing at least one parent to murder and another parent to the criminal justice system (or suicide). Had the circumstances of the first parental loss been unrelated to IPV, another surviving parent could have otherwise been there to support the child through the loss of a loved one (Alisic, Krishna, Groot, & Frederick, 2015). In the 2012 review of 17 DVFRs by Jaffe et al., 112 children (11% of the IPH cases) lost at least one parent to IPH, 119 children (12% of the IPH cases) witnessed the incident, and 273 children (27% of the IPH cases) were categorized as present during the IPH. Child victimization is clearly an overlapping and devastating concern of IPH cases.

However, rates of child homicide and risk factors for children in the context of IPH are not well-documented. According to Alisic et al. (2015), child involvement in the context of IPH is poorly tracked. Websdale (1999) explores the co-occurrence of child abuse and IPH and states that more than 50% of child homicide cases are associated with the presence of IPV. However, a limitation of this research is that it is somewhat dated and should be revisited. In the more recent analysis by Lewandowski et al. (2004), child abuse was present in 9% of the 178 IPH and attempted-IPH cases in the U.S., but this only includes official reports to Child Protective Services (CPS) and is likely a conservative estimate. When looking at only attempted-IPH cases, the rate of CPS-reported child abuse was 18%, with IPV perpetrators making threats to the entire family in 29% of cases (Lewandowski et al., 2004). Although this research is enlightening, there is only limited knowledge of child victimization within IPV fatalities. However, tracking IPH and collateral fatalities inevitably involves children.

Jaffe and Juodis (2006) call for the coordination of DVFRs and Child Fatality Review Committees (CFRCs) as well as information-sharing from Child Protective Services. It is especially important to focus on children as witnesses to IPH because it can have a severe impact on children's mental health, including anxiety, fear, psychosomatic disorders, post-traumatic stress disorder, stunted brain development, externalizing and internalizing problems, aggression, and attachment issues (Alisic, Krishna, Groot, & Frederick, 2015; Hardesty, Campbell, McFarlane, & Lewandowski, 2008; Tsavoussis, Stawicki, Stoicea, & Papadimos, 2014; Vu, Jouriles, McDonald, & Rosenfield, 2016). By responding to the client's request to analyze the involvement of children in DMDVFR datasets, the study provides new information that will assist them in making child victimization a priority in their annual reporting, Red Flags Checklist, and policy recommendations for statewide prevention of IPV fatalities.

### **Geographic Location and IPH**

Colorado is a largely rural state, with 73% (47) of the 64 counties classified as Rural or Frontier (Colorado Rural Health Center, 2016). Although IPV can happen to anyone, rural victims across the United States may be more at risk for experiencing more extreme forms of IPV, such as IPH (Gallup-Black, 2005; Edwards, 2015). In a 20-year nation-wide trend analysis of IPH across rural and urban areas, IPH occurred at a much higher rate in more rural areas compared to metropolitan counties and nonmetropolitan counties that were closer to a metro area (Gallup-Black, 2005). This same study also found that rates of IPH decreased from 1980-1999 except in rural areas, in which IPH rates increased (Gallup-Black, 2005). However, evidence from the literature shows mixed support for the correlation between geographical location and rates of IPH. In a 63-study meta-analysis, Edwards (2015) found that rates are similar across geographical locations. Correlations between location and IPH rates may be complicated by factors such as access to services, poverty rates, socioeconomic status and demographics, substance abuse, attitudes about IPV, and holding patriarchal values, all of which can be confounding variables that exist in both rural and urban populations (Websdale, 1995). However, Edwards (2015) is clear that rural communities do face unique challenges in addressing IPV and IPH, and that more research is needed to control for any confounding variables to identify communities at the highest risk. These confounding risk factors may also be used in the future to tailor a Red Flags Checklist specifically designed for rural victims.

### **IPH and Weapons**

Gun policy has been a large topic of debate in the United States, yet trends associated with IPH and guns are largely overlooked. Langley and Berkson (2018) found that firearms are used in 53.9% of female homicide cases, the most common weapon of choice, followed by sharp instruments (19.8%); hanging, suffocation, or strangulation (10.5%); and blunt instruments

(7.9%) (Petrosky et al., 2017). In IPH-S, firearms were used in 94% of cases (Langley & Berkson, 2018). Both federal law and Colorado statute have outlawed the sale of firearms to perpetrators convicted of felony domestic violence (18 U.S.C. §992; Colo. Rev. Stat. Title 18 Criminal Code §18-1-1001). Additionally, perpetrators in Colorado may be required to surrender their firearm(s) upon a judge's ruling of a legal order of protection, which can be filed voluntarily by a victim or mandated by the court. Campbell (2004) found that a prior arrest for domestic violence can actually serve as a protective factor from IPH for women at high risk for femicide, suggesting that interaction with the legal system may prevent the most dangerous perpetrators from committing IPH. It is important to note, however, that these cases require the legal system to be involved *before* the firearm is removed, which is not always the case in a relationship where IPV is present.

State policymakers across the United States have recently begun to recognize and respond to gun violence trends. In Colorado, House Bill 19-1177 was signed and will become law in January 2020, resulting in the creation of Extreme Risk Protection Orders (ERPO). Any third party (e.g. friends, family members, law enforcement) concerned about a person harming themselves or others will be able to file for an ERPO. An escalation from a traditional protection order, Colorado's new ERPO compels the respondent to (temporarily) surrender their firearm(s) and gun license. If the order becomes permanent after a second hearing where a preponderance of the evidence shows that a person poses a significant risk to self or others by having a firearm, the person may be prohibited from possessing, controlling, purchasing, or receiving a firearm for the next 364 days. Vigdor and Mercy (2006) found that when states adopted ERPOs and other firearm laws for perpetrators of domestic violence, IPH decreased by 8%, or 2.9 homicides per year.

At the federal level, a new provision proposed in 2019 for the Violence Against Women Act (VAWA) include a response to gun violence issues. The Red Flag Provision calls for a respondent's firearm to be confiscated as soon as a judge approves any temporary protection order. This confiscation would occur prior to an ex-parte court hearing in which a judge will consider extending the temporary order of protection into a permanent order of protection. Under the Violent Crime Control Act, it is already illegal for someone to purchase or possess a firearm when they are subject to a permanent order of protection. However, there is a time gap between the approval of a temporary order and the hearing for the permanent order, often about two weeks. Leaving an abuser is a dangerous time period when a victim may be at risk for escalation of violence at the hands of their abuser (Dobash, Dobash, Cavanaugh, & Medina-Ariza, 2007). The U.S. House of Representatives has passed the version of VAWA that would include the new Red Flag Provision. Passing VAWA in the Senate to include the same provision could offer victims across the country more protection during the interim between a legally served temporary order of protection and the official hearing for the permanent order.

### **Risk Factors and Assessment Tools**

Researchers have established that the most common risk factor for IPH is prior abuse (Campbell et al., 2007). However, other additional risk factors include estrangement (separation of the couple or beginning a separation), firearm ownership by the perpetrator, perpetrator unemployment, a perpetrator who is highly controlling, prior threats to kill, threatening use of a weapon or using a weapon during threats, prior incidences of rape by the perpetrator, violence during pregnancy, attempted strangulation, a stepchild in the house who is not the biological child of a male perpetrator, and perpetrator avoidance of arrest for past domestic violence (Campbell et al., 2007). It is important to note that couple separation or a victim threatening to leave the relationship is highly correlated with lethality, and this statistical (and often real) risk of

homicide may prevent victims from leaving their abuser (Dobash, Dobash, Cavanaugh, & Medina-Ariza, 2007). It also suggests that ERPO laws and the proposed Red Flag Provision for the VAWA could save lives. A woman who has ever left her abuser (whether or not she returns) or who separates from her abuser after living together is three times more likely to experience femicide (Campbell et al., 2003). While there are many reasons victims choose to stay with an abuser, fear of murder can be the most serious barrier to leaving.

Risk assessment instruments have been developed to assess the level of danger an IPV victim may face based on a set of risk factors or to retroactively determine what red flags were present in an IPV fatality. There are several published versions of these instruments, each with varying goals. Five have been tested for validity, including the Danger Assessment (DA), the Domestic Violence Screening Inventory, the Kingston Screening Instrument for Domestic Violence, the Spousal Assault Risk Assessment, and the Ontario Domestic Assault Risk Assessment (Messing, Campbell, Wilson, Brown, & Patchell, 2017). The DA is most similar to the DMDVFR's Red Flags Checklist in that it can be implemented by service providers through an interview setting, although the Red Flags Checklist used by the DMDVFR is primarily used to identify red flags during the case review process. Even so, risk assessment tools used by service providers can help make victims more aware of the very real potential for lethal danger as well as help practitioners identify individuals at the highest risk for fatality. Ideally, this identification would lead to a reduction in IPV-related fatalities. However, victims are not always correct in assessing their likelihood of experiencing escalated violence because they are highly reliant on their partner's past abusive behavior as an indicator for risk levels (Connor-Smith, Henning, Moore, & Holdford, 2011). Essentially, a victim of IPV believes they are unlikely to be murdered in the future because their partner has not murdered them in the past. This has dire implications for making sure practitioners have candid conversations with victims when

conducting risk assessments. This will help ensure the victim understands the gravity of their situation, especially if this conversation occurs with an advocate at an IPV service organization but the victim plans to return to their abuser.

### **Summary of Literature**

Intimate partner homicide is a threat to women's safety, especially young women of color (Petrosky et al., 2017). When a woman is murdered, it is extremely likely she was murdered by her past or current intimate partner (Campbell et al., 2007). Collateral fatalities (especially of children) are an unfortunately prevalent consequence of IPH. However, children may also survive these situations as witnesses to IPH, putting them at risk for psychological victimization (Alisic et al., 2015; Hardesty et al., 2008; Tsavoussis et al., 2014; Vu et al., 2016). There is not a clear answer whether rural communities experience higher rates of IPH than non-rural and metropolitan communities. Rural communities, however, possess unique qualities that call for the attention of researchers and practitioners (Edwards, 2015; Websdale, 1995). In a predominately rural state such as Colorado, differentiating among community needs is imperative. What is clear is that the presence of firearms continues to be a known risk factor for IPH even though state and federal laws have attempted to combat the use of firearms by IPV perpetrators (Campbell et al., 2007). Researchers and organizations have identified risk factors for IPH and have created risk assessment tools so that intervention points are more apparent for service providers, law enforcement, and people who know the victim (Messing et al., 2017). Research also suggests that victims may not be able to assess their own level of danger when living with or dating an abuser, which aligns with theories of minimization that protect the victim from the reality of the abuse (Connor-Smith et al., 2011). Although there are many studies that proclaim and agree on risk factors for IPH, it is imperative to investigate the continued merit of established knowledge when the consequences can mean life or death. The literature reinforces

why tracking IPV fatalities at the state level is important for awareness and prevention and affirms the client's need for the current study, in addition to increased financial support.

### **Methodology**

The purpose of the current study is to identify the most recent trends in Colorado IPV fatality data. To achieve this, qualitative data from each incident was read to ensure the correct information was listed in each spreadsheet row (representing one incident). Upon reading qualitative data, variable columns were altered and added to reflect prior research studies as well as clarify information when multiple fatalities were present in a single incident. For analysis, datasets from all five years were combined into one sheet and uploaded into STATA software. The primary methods for this study were descriptive statistics, a paired t-test, and a chi-square test. The sample was too small to utilize odds ratios to compare variables.

The client (DDVCC) is a key stakeholder who helps identify areas for progress in the Colorado public sector, working with both state government and IPV direct-service providers in the community. In accordance with the client's priorities, this study addresses the following research questions concerning domestic violence fatalities in Colorado from DVFRT documented cases between 2013 and 2017:

- RQ1:** What demographics are most likely to perpetrate and be victimized by IPH and IPH-S in Colorado during 2013-2017?
- RQ2:** What are the overall trends of involvement of children (rates, rates of fatality vs. witness)?
- RQ3:** Are there any trends between child fatalities and weapon type or between child fatalities and geographic location?
- RQ4:** What are the most common weapons and geographic locations for IPV fatalities?
- RQ5:** Is there a correlation between total number of fatalities per incident and weapon type?

The following hypotheses, which emerge from the above research questions, were tested:

**H1a:** IPH is more likely to be perpetrated by males compared to females for the period 2013-2017.

**H1b:** IPH victimization is more likely to be experienced by females than males for the period 2013-2017.

**H1c:** IPH-S perpetration is more likely to be committed by males compared to females for the period 2013-2017.

**H1d:** IPV fatality perpetrators will have a greater mean age than IPV victims during the period 2013 – 2017.

**H2a:** Children are involved in at least 10% of IPH and IPH-S cases as a collateral fatality, injured, or as an on-scene witness.

**H2b:** Children involved in an incident are more likely to be witnesses rather than collateral fatalities.

**H3a:** Firearms are the most common weapon used in IPH cases of collateral child fatalities.

**H3b:** When children are involved in fatality incidents, “all-rural” counties and “nonmetro counties not adjacent to a metro area” are more likely to produce a collateral child fatality than “metro” counties and “nonmetro counties adjacent to a metro area”.

**H4a:** Firearms are the most common weapon in all IPV fatality incidents, followed by sharp instruments (such as knives).

**H4b:** IPV fatalities of any type are more likely to occur in all-rural counties and nonmetro counties not adjacent to a metro area than metro counties or nonmetro counties adjacent to a metro area.

**H5:** There is a relationship between guns as weapon type and higher total number of fatalities per incident.

For this study, analysis is mainly descriptive. The justification for the type of analysis used is discussed in the data analysis section. Appendix A includes a table of all variables considered for the study.

### **Measurement and Data Collection**

The secondary data for this study was collected and provided by DDVCC/DMDVFR. The compiled datasets originate from the DMDVFR's own comprehensive collection of statewide DVFR data by method of "retrospective surveillance", meaning that information is gathered from a variety of sources after the IPV fatality has occurred (Belknap, Larson, Abrams, Garcia, & Anderson-Block, 2012). The DMDVFR relies on law enforcement agencies, news media reports, and online submissions to the DDVCC website (via individuals and organizations) to produce their data spreadsheets (Belknap et al., 2012). Qualitative data from IPV fatality cases are gathered during the case review process through criminal legal system records, interviews with friends and families of the victim (when appropriate), and any other available documentation. However, not all domestic violence related fatality cases from 2013 to 2017 have been closed, so DVFRs cannot legally analyze or discuss these cases. Therefore, descriptive case data for this dataset is incomplete and cannot be effectively utilized for qualitative analysis. In response, this study takes a purely quantitative approach. This means that

all results will be numerical rather than descriptive, although the results will be interpreted in descriptive form.

### **Sampling Plan**

The sample size for the study is  $n=152$ . This is the total number of dated incident cases collected by the DMDVFR from 2013 to 2017 minus four cases that were excluded from the study. From the original dataset, these four incidents were deleted for the following reasons: the presence of IPV was unclear, the fatality occurred during a year not included in this study, or the fatality occurred in another state (Appendix C). The total number of fatalities for these five years was 210. However, the unit of analysis for this study is the dated incident, not the individual fatalities. Individual fatalities within the incidents will not be analyzed in the scope of this study. Each incident is coded with the type of fatality or combination of fatalities that occurred. A list of fatality types can be found in Appendix A.

The variables in the original dataset are as follows: Date of Incident, Victim First Name, Victim Last Name, Victim Age, Victim Gender, Perpetrator First Name, Perpetrator Last Name, Perpetrator Age, Perpetrator Gender, Incident City, Incident County, Children (yes/no), Involvement of Children, Names and Ages of Children Involved, Weapons (yes/no), Type of Weapon(s), Brief Description of Incident, Type(s) of Fatality, Victim's Cause of Death, and Total Fatalities (per incident). The final three columns in the original dataset include information regarding the submission source of the incident data, which would normally be collected via the DMDVFR website submission form. However, almost all these cells are blank and not relevant to the client's needs for the current study, so this information will not be analyzed. Names of the victims, perpetrators, and children will not be disclosed due to confidentiality. During coding of the data, two columns were added to include "Collateral Fatality (yes/no)" and "Collateral

Relationship”. This allowed for more descriptive analysis of the dataset. Incident descriptions and fatality counts informed the entries for these two columns when available.

#### **A note on intimate partner suicide.**

Intimate Partner Suicide in the absence of homicide is not a focus of the current study, but these cases are included in fatality data. Many IPS-only cases are an abuser using the suicide to torture the victim in the IPV relationship one final time. However, not all IPS cases are by abusers and may include the suicide of an IPV victim as an attempt to escape the abuser by taking one’s own life. In the vain of culturally responsive language, the phrase “committed...suicide” will not be used. In all cases of suicide reported in the results of the study and the discussion, the term used will be “died by suicide” to respect that the victim lost their life to suicide as a cause of death rather than committed a crime (National Institute of Mental Health, n.d.).

#### **Validity and Reliability**

Because this study utilizes secondary data, it is not entirely certain that the information in the Excel spreadsheets was collected methodically without bias. Also, some of the data are collected through online submissions and news sources and are not 100% reliable because they are secondhand accounts rather than from state departments or law enforcement agencies that may have more accurate information. However, this is the limitation of any DVFR collection, since there is no other form of tracking fatalities in the context of IPV and limits the internal validity of a study using DVFR data. To ensure maximum internal validity, variables have been cleaned and separated to the extent possible. However, data such as child ages are not analyzed because the unit of analysis is the fatality incident, not the individual fatalities themselves. Also,

since multiple children can be involved in an incident, the coding of their involvement only represents one code value. (For more on the coding procedure, see *Data Cleaning* below).

Confounds are always an issue in social science research, since one variable may not provide the entire picture. As discussed in the literature, “rural” and “urban” are distinct variables, but individuals within each of these categories may vary greatly in age, political affiliation, ethnicity, and socioeconomic status. Since the data include only a snapshot of information from each incident, the limitations of the variables in the DVFR data is further discussed in the limitations section of the study.

This study is reliable because the data categories remain constant in DVFR data. Additionally, reliable coding strategies are used to supplement the data, making any replication easily accessible. It is in the best interest of the DMDVFR to replicate this study to track trends in fatality data for years to come. The 2017 dataset added race/ethnicity to the list of variables, but this category is not available for previous years and cannot be analyzed in the current study.

Colorado is an extremely rural state with a few metropolitan areas, and the results for this study only apply to Colorado. However, any IPH research adds to the literature and can identify important trends or risk factors that can be added to the Red Flags Checklist and could save lives. Even if another state is not similar to Colorado, researchers in other locations across the United States should pay attention to the results of any study related to IPH that could increase prevention and decrease rates of violence. The current study maximizes the ability to repeat the study in another state by categorizing the geographic locations based on a nationally respected coding system and aligning variable choices with published research (see *County Classification* below). However, generalizability is not a concern for this study as the results are solely intended for the benefit of the client.

## **Data Analysis**

First, descriptive statistics are reported on relevant variables to identify trends across years, including victim and perpetrator genders, ages of victims and perpetrators, involvement of children, weapon type, and location (county classification) of the case.

### **County classification.**

Counties are classified using the method in the Gallup-Black (2005) study, which is based on the 2013 U.S. Department of Agriculture (USDA) Economic Research Service Rural-Urban Continuum Codes updated every ten years. The USDA continuum classifies counties on a scale of one to nine, where 1 = Counties in metropolitan areas of 1 million population or more, and 9 = Completely rural or less than 2,500 urban population, not adjacent to a metro area. Gallup-Black (2005) determined this scale would be too spread out to effectively classify IPH and decided to collapse the scale into four categories: 1 = metropolitan counties; 2 = non-metropolitan counties adjacent to a metropolitan area; 3 = non-metropolitan counties not adjacent to a metropolitan area; and 4 = all rural or population less than 2,500 (Gallup-Black, 2005). A full list of Colorado counties and their corresponding USDA and Gallup-Black (2005) codes is included (Appendix B). The Gallup-Black coding system has been used by many academic scholars in IPV research, so it is considered reliable for the current study.

### **Analysis plan.**

For Hypotheses 1a, 1b, and 1c, tables were generated to determine the frequency of each gender category for IPH perpetration, IPH victimization, and IPH-S perpetration, respectively. The information gathered from this analysis determined whether it is more common to be male or female when listed as a victim or perpetrator in this dataset. There were no individuals listed as transgender or nonbinary. Hypothesis 1d concerning mean differences in victim and perpetrator ages across all five years is approached using a paired t-test. There are missing data for victim and perpetrator ages, so only 114 (75%) of 152 observations are used. This paired t-

test will determine whether there is a significant difference in age between perpetrators and victims.

Hypothesis 2a was tested using a frequency table on the binary variable of child involvement to find what percentage of fatality incidents involved a child as a fatality, injury, or on-scene witness. Child involvement as “present (not witness)” and “other” will not be included for this portion of the analysis. Hypothesis 2b was tested using a complete frequency table of child involvement and fatality types to determine the total percentage of child fatality incidents compared to on-scene witness cases. Frequency tables were used to test Hypotheses 3a and 3b. This method will identify the most common weapons and geographic locations for child fatalities, respectively. Similar to Hypotheses 3a and 3b, both Hypotheses 4a and 4b were tested using frequency tables to determine the most common type of variables in fatality incidents.

The method to test Hypothesis 5 was a chi-square analysis to determine whether weapon type category is related to the category of number of fatalities per incident. Statistical significance was set at the  $p < 0.05$  level.

***Interaction with qualitative data.***

As previously mentioned, this study does not include a qualitative analysis. However, there are many descriptive details in the dataset, including descriptions of humans committing vile crimes against others, especially women. It is important to note the darkness of the study’s focus and to recognize the role of secondary trauma. Self-care was practiced throughout the study timeline, and qualitative data was read in moderation only as necessary to the study (e.g. to identify any missing quantitative data). The client was willing to debrief when needed. Since data confidentiality is important in protecting the victims, the data was not and will not be discussed with or disclosed to anyone other than the client, faculty readers, and any entities the client deems appropriate, such as the DMDVFR and the Colorado Attorney General’s Office.

***Data cleaning.***

During the data cleaning phase, several important changes were made to more accurately report on the datasets (Appendix C). First, the victim columns were relabeled as “DV victim” so that the data would reflect the victim within an IPV relationship. Previously, “victim” could have meant either the victim in an IPV relationship or a fatality victim in the incident. However, there are many cases in this dataset with multiple fatalities, so this change was necessary for consistency. To clarify collateral fatalities, a column was added “Collateral Fatality (yes/no)” and another “Collateral Relationship” (descriptive) so that collateral fatality “victims” were still accounted for, even if these individuals were not the victim of an IPV relationship. However, the type of collateral relationship listed was ultimately not used in this study.

Additionally, fatality types were renamed according to related literature. For example, “Murder/Suicide” was renamed “IPH-S” to reflect an Intimate Partner Homicide-Suicide, when appropriate. If a “Murder” was a collateral fatality, it was labelled as such. The list of newly labelled fatality types are as follows: IPH, IPH-S, Collateral Fatality (CF), IPH and CF, IPH-S and CF, IPS, Killed by Law Enforcement (KLE), CF and KLE, IPS and Collateral Fatality. Weapon types were renamed according to CDC classification. Knives were classified as “sharp instruments”. If a perpetrator used their hands as a weapon, the classification was listed as “hands only” if there was no strangulation. “Strangulation” was used for cases of strangulation by hands or other objects. Some incidents included methods not listed by the CDC, such as drugs or fire. These cases were labelled as “other”. For incidents of KLE-only (the fatality was not caused by the IPV perpetrator), “weapon used” (yes/no) was listed as “no” since the fatality weapon was used by law enforcement and would inflate any results analyzing the use of firearms by perpetrators.

Some incidents involved multiple weapons. To code this variable, attempts were made to code by the most severe weapon used. Although firearms are an obvious choice for most violent weapon, there is no completely objective way to order weapons. For the current study, if a firearm was used in conjunction with another weapon, the weapon was coded as “firearm”. If a sharp object was used in conjunction with another weapon type (other than a firearm), it was coded as “sharp object”. If a blunt instrument was used in conjunction with another weapon type (other than a firearm or sharp object), it was coded as “blunt instrument”. Almost all other cases were clearly one weapon type. This coding strategy is due to wide variability in the data and is a limitation of the current analysis. However, perpetrator use of a firearm is the most relevant use of the weapons variable for the current study, so this coding method was deemed appropriate.

Similarly, in cases of child involvement, some incidents include multiple children who are “involved” to varying degrees. To make analysis possible at the incident unit level of analysis, child involvement was coded by the most severe involvement. For example, if two children were “involved”, but one was a collateral fatality while the other was an on-scene witness, the involvement is coded as “fatality”. Although this affects the validity of the analysis, multiple fatalities per incident is a persistent issue in analyzing this dataset, as also seen in the “fatality type” and “weapon type” coding.

## Results

For the current analysis, a total of 152 incidents occurred from 2013 to 2017. Table 1 (below) displays the number of incidents and fatalities by year.

Table 1.

<b>Total Number of IPV Incidents and Fatalities by Year in Colorado 2013 to 2017</b>		
<b>Year</b>	<b>Incidents</b>	<b>Fatalities</b>
2013	30	41
2014	24	37
2015	27	35
2016	43	58

2017	28	38
<i>Total</i>	152	210

Fatality types were separated so as not to overlap when multiple fatality types are present. Of the 152 observable incidents, the fatality type frequencies and percent are displayed in Table 2. Including overlapping fatality combinations, the total number of incidents of IPH is 112 (73.7%) cases. Collateral fatalities occurred in 32 (21.0%) incidents; intimate partner suicide (IPH-S and IPS codes) occurred in 50 (32.9%) incidents; and in 11 (7.2%) cases, a fatality was the result of law enforcement intervention.

Table 2.

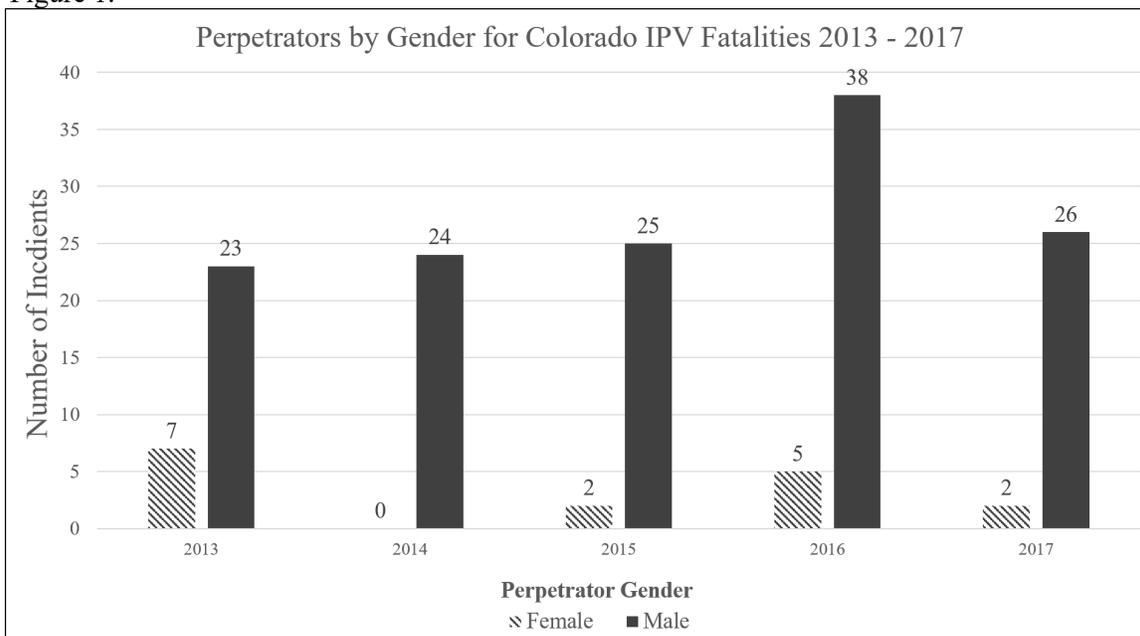
<b>IPV Fatality Type Frequencies in Colorado 2013 - 2017</b>		
IPH	71	46.71%
IPH-S	31	20.39%
Collateral Fatality (CF)	17	11.18%
IPS	8	5.26%
Killed by Law Enforcement (KLE)	8	5.26%
IPS and KLE	6	3.95%
IPH-S and CF	5	3.29%
IPH and CF	3	1.97%
IPH and KLE	2	1.32%
CF and KLE	1	0.66%
<i>Total</i>	152	100.00%

### **RQ1: What genders are most likely to perpetrate and be victimized by IPH and IPH-S?**

In 89.5% (136) of all incidents from 2013 to 2017, the IPV perpetrator was male. In 10.5% (16) of cases, the perpetrator was female. For a breakdown of the number of male and female perpetrators by year, see Figure 1 (below). The range of male perpetrator percentage across the five-year period was 76.7% of incidents in 2013 to 100% of incidents in 2014. The highest percentage of female perpetration was in 2013 with 23.3% (7) incidents. In 90.1% (136) of incidents from 2013 to 2017 the IPV victim was female, although she may not be one of the fatalities in the incident. In 9.9% (15) incidents from 2013 to 2017 the IPV victim was male,

although he may not be one of the fatalities in the incident. The range of female IPV victim percentage from 2013 to 2017 was 73.3% of incidents in 2013 to 100% of incidents in 2014. The highest percentage of male IPV victims was in 2013 with 36.7% of incidents. There were no victims or perpetrators listed as Transgender or Not Specified, and there were no missing data for victim or perpetrator genders. It is also important to consider that it is almost impossible to determine which, if any of the ‘female perpetrators’ were acting in a self-defending manner.

Figure 1.



Every incident in this study involves a fatality in the context of an IPV relationship. To answer Research Question 1, victimization and perpetration was further analyzed specifically for cases of IPH and IPH-S. Of the three categories of fatality types that involved IPH (without suicide), males were perpetrators in 65 (85.5%) incidents. In contrast, females were perpetrators of IPH fatalities in 11 (14.5%) incidents. Therefore, the results fail to reject Hypothesis 1a, since males are more likely than females to perpetrate IPH. Males were fatality victims in 8 (10.5%) IPH incidents, whereas females were fatality victims in 68 (89.5%) IPH incidents. The results fail to reject Hypothesis 1b, since females were more likely IPH fatality victims than males.

Of the two fatality types that involved IPH-S, males were perpetrators in 34 (94.4%) incidents, while females were perpetrators in only two (0.06%) incidents. Therefore, results fail to reject Hypothesis 1c that IPH-S is more likely perpetrated by males than by females.

IPS and IPS with a Collateral Fatality were perpetrated by males in 13 incidents. One incident of IPS was perpetrated by a female, but no incidents of IPS with a Collateral Fatality were perpetrated by females.

IPV victim ages ranged from 17 to 83 years old, with 39.36 as the mean IPV victim age. Perpetrator ages ranged from 17 to 83 years old as well, with 41.57 as the mean perpetrator age. A paired t-test of 114 matched observations revealed that the mean difference in age between perpetrators and IPV victims was 2.98 years, with perpetrators being older than IPV victims. This difference is statistically significant at  $p < 0.001$  and supports Hypothesis 1d that the mean perpetrator age is greater than mean victim age.

## **RQ2: What are the overall trends of child involvement?**

Of 152 observable incidents from 2013 to 2017, 58 children were involved in 24.3% (37) of incidents. In the incidents of child involvement, 13 (34.2%) were a child(ren) fatality, one (0.3%) was a child(ren) injury, 18 (47.4%) cases had a child(ren) as an on-scene witness, two (0.5%) cases had a child(ren) present but not an on-scene witness, and four (10.5%) cases were categorized as “other”. These “other” cases involved minors as IPV victims, perpetrators, and other circumstances. It is important to remember that there were multiple children involved at varying degrees for some of these incidences, but only the most severe category of involvement was coded for the child involvement.

When subtracting the four cases of child involvement labeled “other” and the two cases labeled “present, not witness”, children were involved in 21.1% (33) of incidents as a fatality, injury, or on-scene witness. This supports Hypothesis 2a that children are involved in at least

10% of incidents as a fatality, injury, or on-scene witness. For all 37 incidents where children were involved, children were most likely to be an on-scene witness rather than a collateral fatality, so we fail to reject Hypothesis 2b. Children were most likely to be homicide victims in cases of “IPS with an additional Collateral Fatality” (38.5%) , when the perpetrator murdered a child (or children) and then took their own life.

**RQ3: Are there any trends between child fatalities and weapon type or between child fatalities and geographic location?**

Incidents of collateral child fatalities only included two types of weapons: firearms and sharp instruments. In these cases, firearms were used 58.3% of the time (7 cases) while sharp instruments were used 41.7% of the time (5 cases). Therefore, we fail to reject Hypothesis 3a that firearms are the most common weapon used in cases of collateral child fatalities. It is important to remember that these weapons were coded as the most severe weapon used in the incident and may have been used in conjunction with another weapon (e.g. a firearm and a sharp instrument, a sharp instrument and suffocation, etc.)

From 2013 to 2017, there were no collateral child fatalities in counties classified in County Classification Code 4, which includes “completely rural or < 2,500 urban population and adjacent to metro area” or counties that are “completely rural or less than 2,500 urban population and not adjacent to metro area”. Of the 13 incidences involving collateral child fatalities, 84.6% occurred in County Classification Code 1, which includes “metro areas with populations of one million or more”, those in “metro areas with populations 250,000 to one million”, and those in “metro area with populations less than 250,000”. The remaining collateral child fatalities (7.7%) occurred in County Classification Codes 2 and 3, which includes counties with “urban population of 20,000 that are adjacent to metro area: or in counties with an “urban population of 2,500 to 19,999 that are adjacent to a metro area”. An odds ratio cannot be calculated because

there were not enough observations, so it is impossible to say with statistical certainty that children involved in IPV fatality incidents had a greater chance of involvement in more metro or more rural counties. Regardless, Hypothesis 3b is rejected because the clear majority (84.6%) of child fatalities (for incidents where children were involved) from 2013 to 2017 occurred in more metro areas rather than more rural areas.

**RQ4: What are the most common weapons and geographic locations for IPV fatalities?**

Firearms were the most common weapon (59.9%) used by perpetrators for incidents 2013 to 2017, followed by sharp objects (21.2%), strangulation methods (8.0%), hands without strangulation (3.7%), blunt instruments and other (each 2.2%), and hanging and suffocation (each 1.5%). These percentages align with CDC-backed statistics from Langley and Berkson (2018) and confirm Hypothesis 4a that firearms are the most common weapon used in IPV cases of collateral child fatalities.

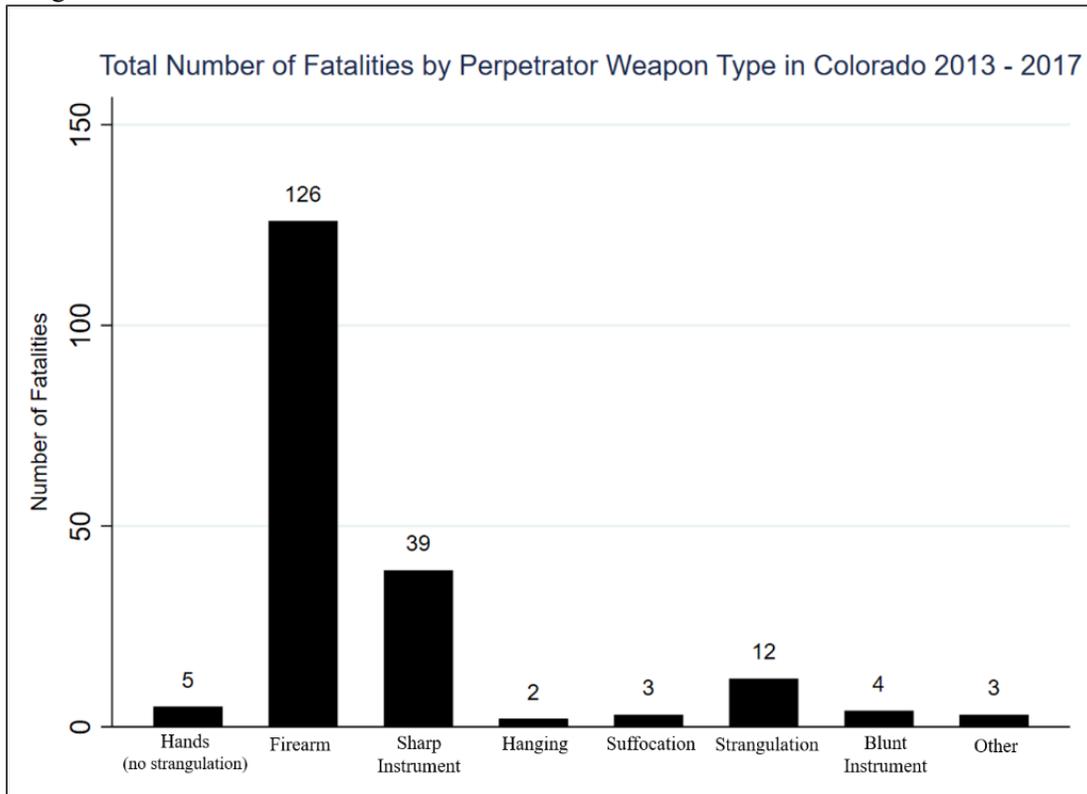
Although there were four possible county classification codes for Colorado counties, IPV fatality incidents only occurred in Gallup-Black (2005) county classifications 1, 2, and 3. The most common incident county group was classification 1, with 136 (89.5%) of incidents. Second most common was county classification group 3 with nine incidents (5.9%), and third was county classification group 2 with seven incidents (4.6%). Hypothesis 4b is rejected because the opposite occurred: fatality incidents in the dataset were most likely to occur in more metro counties than rural counties.

**RQ5: Is there a correlation between total number of fatalities per incident and weapon type?**

Of the 152 incidents, there were four possible outcomes for total number of fatalities. Incidents resulted in one fatality (68.4%), two fatalities (26.3%), three fatalities (4.0%), or four fatalities (1.3%). Hypothesis 5 that there is a relationship between firearms as weapon type and

higher total number of fatalities per incident, is rejected because there is no statistically significant correlation between weapon type and total fatalities per incident. However, the total fatalities produced by each weapon type for all five years are displayed in Figure 2 (below).

Figure 2.



### Discussion and Recommendations

The results of the current analysis are useful for the client, and the study has revealed some opportunities. First, as is the case with existing literature, males were much more likely to be IPV fatality perpetrators than females in all types of fatalities as well as in both IPH and IPH-S incidents. It is not a surprise that males are more likely the murderers in cases of IPV-related fatalities. According to the National Coalition Against Domestic Violence, women are more likely to be victims of IPV than males (Black et al., 2011). Even more, females are extremely more likely than males to be the victim of Intimate Partner Homicide (IPH) and even more likely than males to be the victim of an Intimate Partner Homicide-Suicide (IPH-S) (Petrosky et al.,

2017; Langley & Berkson, 2018). Consistent with past research by Banks, Crandall, Sklar, and Bauer (2008), perpetrators in this study are significantly older than their victims, although only by three years.

The client should consider changing the organization of data by adding some new variables to its dataset (Appendix D). For example, in the current analysis, changing the incident victim to reflect the IPV relationship victim created more consistency among the data since incidents contained multiple fatalities. However, results may be more thorough if also analyzing at the individual fatality level. For example, there should be a duplicate spreadsheet for each year, with one sheet representing individual incidents and the other including individual fatalities (Appendix D). This way, more child data will be captured, and fatalities can be more closely correlated with other existing variables. With its limited resources, this reorganization task may not be realistic for the DMDVFR. In the meantime, it would be helpful to add columns concerning collateral fatalities and a column with records of perpetrator criminal records. The older the data, the more information that is available for an incident. However, deciding to collect as much information as possible is only helpful if it can be successfully organized.

Second, per the client's requests concerning child involvement, this analysis revealed that children were involved in 24.3% of incidents from 2013 to 2017. Although on the higher end of the spectrum, this result does not depart from other reports that range from 11% to 27% (Jaffe et al., 2012). In the current study, children were an on-scene witness in 47.4% of cases of child involvement and perished as a collateral fatality in 34.2% of cases of child involvement. Although it is somewhat relieving to know that less child fatalities occur than do incidents of on-scene witness involvement, the damage to the child can still be drastic. Data revealed that children were only collateral fatalities in cases where a perpetrator used a firearm or a sharp instrument, suggesting the danger of having these weapons in the home. When researching and

reporting on IPV-related fatality incidents, it will continue to be critical to consider the involvement of children, as they are likely witnesses to years of ongoing violence before an IPH or IPH-S occurs.

The U.S. Department of Justice reports that one child in every 15 is exposed to intimate partner violence annually, almost always (90%) as a witness to the violence (Hamby, Finkelhor, Turner, Ormrod, 2011). As child involvement in IPV-fatalities surfaces in the literature and intersects with child abuse cases, the DMDVFR should consider working with child fatality review committees and boards to share information when possible. The Colorado Department of Human Services runs a statewide Child Fatality Review Team as part of the Child Fatality Prevention System (CFPS). The CFPS review teams make up all of Colorado's 64 counties, so the data is likely to be thorough. Some child fatality information will be confidential since it involves minors, but any available data will be extremely valuable for creating more awareness of the implications for children in IPV cases. However, federal grant funding is structured very specifically, so overlap between IPV and child fatalities may prove difficult in practice.

In the same way that creating a separate sheet for individual fatalities is advised, the client should also consider including a spreadsheet specifically for child involvement. This would mean each child involved in a fatality incident would have an age and gender assigned as well as possess their own coded involvement type (Appendix D). It is likely that collaboration between the CFRT and the DMDFRT could benefit both teams' data organization. In this way, the DDVCC could perform deeper analysis concerning children in IPV fatality cases.

Third, the current analysis surprisingly revealed that most of the IPV fatality cases occurred in Colorado urban/metro counties with large populations. Odds ratios could not be calculated due to small sample size, so this study does not indicate whether an IPV fatality is significantly more or less likely to occur in a certain county size. It was hypothesized that IPV-

fatalities would be more prevalent in rural counties with small populations since these communities often have fewer resources and are communities known for more traditional values (Edwards, 2015; Websdale, 1995). Gallup-Black (2005) found that IPV-related fatalities clearly increased as county classification became more rural. However, using the same Gallup-Black (2005) county coding system, Reckdenwald, Szalewski, and Yohros, (2019) found similar results to the current study, that IPH occurred more often in urban than in rural counties.

It is unclear whether the results of the county analysis are reflective of actual circumstance or due to reporting issues. The DDVCC through the DMDVFR is responsible for collecting statewide fatality data and starting new local review teams throughout Colorado. It is possible that not all homicide data are being correctly categorized as IPV-related by more rural counties, and therefore is not easy to identify by the DMDVFR. Because there were not as many rural county incidents, child involvement in this dataset occurred more often in urban/metro counties with large populations. The existing literature is still unclear whether IPV-related fatalities occur more often in rural rather than urban geographical locations. Edwards (2015) reported mixed results with regards to urban and rural IPV fatalities. The current study seems to add to the confusion.

It is important to note, however, that IPV occurs to people of all different backgrounds (e.g. race, age, socioeconomic status), but that some victims may have more access to resources to escape an abuser or cope with the abuse. It may be the case that IPH and IPH-S are such immediately fatal incidents that access to resources is less of a protective factor when dealing with such violent and terminal forms of abuse. However, it is also possible that the DMDVFR is missing important data on “attempted” homicides and suicides. There is not currently a category for this type of fatality within the DDVCC dataset, likely because data only includes IPV incidents when there is a fatality. Regardless, attempted IPH and IPH-S cases are still extreme in

nature, and it would be interesting to see if certain county types experienced this category more than others. Collecting attempted-homicide and attempted-suicide data would also add to the tedious workload of the DDVCC and may not be feasible at this time.

Finally, the current study revealed that firearms were the most common weapon of choice (59.9%), followed by sharp objects (21.2%), in line with current trends in the literature (Langley & Berkson, 2018). Firearms were involved in 129 total fatalities from 2013 to 2017, while sharp instruments resulted in 39 total fatalities. This evidences the gravity of firearm use in producing more than three times the deaths as sharp instruments. These results are not at all surprising, considering the high rate of gun violence that is prevalent in the United States.

The ERPO law in Colorado does not go into effect until 2020. In the future, the DMDVFR should be vigilant in collecting data concerning the use of ERPOs and determining whether this policy change affects IPV fatalities. For example, civil and criminal records as well as relationships with police, judges, and attorneys can be leveraged to research whether a perpetrator currently has (or ever had) an order of protection filed against them in civil court, in addition to any past criminal domestic violence charges. Currently, the state of Colorado does not manage this information or provide it freely to the public, so it is only available online for purchase from companies LexisNexis and Background Information Services, Inc. This poses a safety issue for individuals who want to know if a current or potential intimate partner has any past IPV records. Making these records public is an area for future political advocacy in Colorado since some other states house online databases for public criminal and civil records (e.g. Missouri's CaseNet). Ultimately, the DDVCC is poised to be an important voice for determining whether the ERPO law is effective evidence-based policy by tracking ERPO filings within fatality incidents and should make every effort to do so.

### **Limitations**

Although the current study provides useful insight for five years of fatality data, there are limitations of the study. Because variables were reorganized and coded according to existing literature, this does not reflect the exact type of analysis done by the client in the past. This may create difficulty in comparing the 2013 – 2017 results to any past multi-year analyses. However, it is possible that the reorganization is helpful for interpreting the data for the future and in relation to the broader literature. Next, this study was completed by an individual with limited professional experience in domestic violence direct services. Efforts were made to separate personal bias from the study and to interpret the data at face-value. It should also be considered that this study was completed by someone with limited knowledge of IPV-related fatalities, which is a very specific field of research. While efforts were made to be thorough in the analysis of the provided dataset, the client is the expert in this topic. Finally, the sample size is relatively small at 152 incidences, reiterating why it is better to analyze multiple years of fatality data whenever possible and why it might be more useful to analyze at the individual fatality level, which was 210 for this dataset.

### **Conclusion**

In conclusion, the dataset provided by DDVCC answered the four research questions for this study. All IPV-related fatalities, IPH, and IPH-S were perpetrated more by males than females, and females were more likely to be victims in IPH and IPH-S incidents. Firearms were the most common weapon used by perpetrators, followed by sharp instruments. Both results are aligned with current IPV-fatality literature. However, incident county codes revealed results that conflicted with some of the literature, with more incidents occurring in highly populated urban/metro counties rather than low-population rural counties. Like many other recently published studies, this analysis sought to describe the involvement of children within IPV-fatality cases. Results demonstrated that children were involved in almost a quarter of all fatality

cases as a collateral fatality, injury, on-scene witness, present but not a witness, or other. For cases in which children were involved, they were more likely to be on-scene witnesses than collateral fatalities. Further collaboration with child fatality review teams in Colorado may prove the most common weapon used in collateral fatalities between 2013 and 2017 was a firearm, followed by sharp instruments. These were the only two types of weapons used in cases involving collateral child fatalities during the five-year period. Perpetrators using firearms were responsible for 129 (61.42%) of the 210 fatalities in the dataset. Colorado's new ERPO law has the potential to reduce the number of IPV fatalities with a firearm. With the results of this study, the client is prepared to compare future data to the most recent information available and advocate for evidence-based policy in Colorado. Since becoming codified into Colorado statute, the annual Colorado Domestic Violence Fatality Review Report is more important than ever. The DMDVFR will continue to be a key voice for victims of IPV and IPV fatalities in the community and in state policy.

## References

- Alisic, E., Krishna, R. N., Groot, A., & Frederick, J. W. (2015). Children's mental health and well-being after parental intimate partner homicide: A systematic review. *Clinical child and family psychology review, 18*(4), 328-345. doi:10.1007/s10567-015-0193-7
- Banks, L., Crandall, C., Sklar, D., & Bauer, M. (2008). A comparison of intimate partner homicide to intimate partner homicide-suicide: One hundred and twenty-four New Mexico cases. *Violence Against Women, 14*(9), 1065-1078.  
doi:10.1177/1077801208321983 <http://vaw.sagepub.com>
- Belknap, J., Larson, D. L., Abrams, M. L., Garcia, C., & Anderson-Block, K. (2012). Types of intimate partner homicides committed by women: Self-defense, proxy/retaliation, and sexual proprietariness. *Homicide Studies, 16*(4), 359-379.  
doi:10.1177/1088767912461444
- Black, M.C., Basile, K.C., Breiding, M.J., Smith, S.G., Walters, M.L., Merrick, M.T., Chen, J., & Stevens, M.R. (2011). The National Intimate Partner and Sexual Violence Survey (NISVS): 2010 Summary Report. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.
- Campbell, J.C. (2004). Helping women understand their risk in situations of intimate partner violence. *Journal of Interpersonal Violence, 19*(12), 1464-1477.  
doi:10.1177/0886260504269698
- Campbell, J. C., Glass, N., Sharps, P. W., Laughon, K., & Bloom, T. (2007). Intimate partner homicide: Review and implications of research and policy. *Trauma, Violence, & Abuse, 8*(3), 246-269. doi:10.1177/1524838007303505

Campbell, J. C., Webster, D., Koziol-McLain, J., Block, C., Campbell, D., Curry, M. A., ...

Laughon, K. (2003). Risk factors for femicide in abusive relationships: Results from a multisite case control study. *American Journal of Public Health, 93*(7), 1089–1097.

Centers for Disease Control & Prevention. (2018). Intimate Partner Violence: Consequences. Retrieved from

<https://www.cdc.gov/violenceprevention/intimatepartnerviolence/consequences.html>

Connor-Smith, J. K., Henning, K., Moore, S., & Holdford, R. (2011). Risk assessments by female victims of intimate partner violence: Predictors of risk perceptions and comparison to an actuarial measure. *Journal of Interpersonal Violence, 26*(12), 2517-2550. doi:10.1177/0886260510383024

Dobash, R. E., Dobash, R. P., Cavanagh, K., & Medina-Ariza, J. (2007). Lethal and nonlethal violence against an intimate female partner: Comparing male murderers to nonlethal abusers. *Violence against women, 13*(4), 329-353. doi:10.1177/1077801207299204

Edwards, K. M. (2015). Intimate partner violence and the rural–urban–suburban divide: Myth or reality? A critical review of the literature. *Trauma, Violence, & Abuse, 16*(3), 359-373. doi:10.1177/1524838014557289

Gallup-Black, A. (2005). Twenty years of rural and urban trends in family and intimate partner homicide: Does place matter? *Homicide Studies, 9*(2), 149-173. doi:10.1177/1088767904274158

Hamby, S. L., Finkelhor, D., Turner, H., & Ormrod, R. (2011). Children's exposure to intimate partner violence and other family violence. *National Survey of Children's Exposure to Violence*. Retrieved from <https://www.ncjrs.gov/pdffiles1/ojdp/232272.pdf>

- Hardesty, J. L., Campbell, J. C., McFarlane, J. M., & Lewandowski, L. A. (2008). How children and their caregivers adjust after intimate partner femicide. *Journal of Family Issues, 29*(1), 100-124. doi:10.1177/0192513X07307845
- Jaffe, P. G., Campbell, M., Hamilton, L. H., & Juodis, M. (2012). Children in danger of domestic homicide. *Child Abuse and Neglect: The International Journal, 36*(1), 71. doi:10.1016/j.chiabu.2011.06.008
- Jaffe, P. G., & Juodis, M. (2006). Children as victims and witnesses of domestic homicide: Lessons learned from domestic violence death review committees. *Juvenile and Family Court Journal, 57*(3), 13-28.
- Langley, M. & Berskon, A. (2018). American roulette: Murder-suicide in the United States. *Violence Policy Center, 6<sup>th</sup>* ed. Retrieved from <http://vpc.org/studies/amroul2018.pdf>
- Lewandowski, L. A., McFarlane, J., Campbell, J. C., Gary, F., & Barenski, C. (2004). "He killed my mommy!" Murder or attempted murder of a child's mother. *Journal of Family Violence, 19*(4), 211-220. <https://doi.org/10.1023/B:JOFV.0000032631.36582.23>
- Messing, J. T., Campbell, J., Sullivan Wilson, J., Brown, S., & Patchell, B. (2017). The lethality screen: the predictive validity of an intimate partner violence risk assessment for use by first responders. *Journal of Interpersonal Violence, 32*(2), 205-226. doi:10.1177/0886260515585540
- Meyer, E., & Post, L. (2013). Collateral intimate partner homicide. *Sage Open, 3*(2), 2158244013484235. doi:10.1177/2158244013484235
- National Institute of Mental Health. (n.d.). Suicide in America: Frequently asked questions [PDF]. Retrieved from [https://www.nimh.nih.gov/health/publications/suicide-faq/suicideinamericafaq-508\\_149986.pdf](https://www.nimh.nih.gov/health/publications/suicide-faq/suicideinamericafaq-508_149986.pdf)

- Petrosky, E., Blair, J. M., Betz, C. J., Fowler, K. A., Jack, S. P., & Lyons, B. H. (2017). Racial and ethnic differences in homicides of adult women and the role of intimate partner violence—United States, 2003–2014. *MMWR Morbidity and Mortality Weekly Report*, 66(28), 741. doi:<http://dx.doi.org/10.15585/mmwr.mm6628a1>
- Reckdenwald, A., Szalewski, A., & Yohros, A. (2019). Place, injury patterns, and female-victim intimate partner homicide. *Violence against women*, 25(6), 654-676.  
<https://doi.org/10.1177/1077801218797467>
- Tsavoussis, A., Stawicki, S., Stoicea, N., & Papadimos, T. J. (2014). Child-witnessed domestic violence and its adverse effects on brain development: A call for societal self-examination and awareness. *Frontiers in Public Health*, 2, 178.  
doi:10.3389/fpubh.2014.00178
- Violence Policy Center. (2018). *When men murder women: An analysis of 2016 homicide data*. Retrieved from <http://vpc.org/studies/wmmw2018.pdf>
- Vigdor, E. R., & Mercy, J. A. (2006). Do laws restricting access to firearms by domestic violence offenders prevent intimate partner homicide? *Evaluation review*, 30(3), 313-346.  
doi:10.1177/0193841X06287307
- Vu, N. L., Jouriles, E. N., McDonald, R., & Rosenfield, D. (2016). Children's exposure to intimate partner violence: A meta-analysis of longitudinal associations with child adjustment problems. *Clinical Psychology Review*, 46, 25-33.  
<http://dx.doi.org/10.1016/j.cpr.2016.04.003>
- Websdale, N. (1995). An ethnographic assessment of the policing of domestic violence in rural eastern Kentucky. *Social Justice*, 22(1(59)), 102-122.  
<https://www.jstor.org/stable/29766867>
- Websdale, N. (1999). *Understanding domestic homicide*. Boston: Northeastern University Press.



Appendix A

<b>Table of Variables and Relevant Hypotheses</b> <b>Intimate Partner Violence Fatalities 2013-2013</b> Data Source: Denver Domestic Violence Coordinating Council	
<p><b>Year of Incident (n=5)</b></p> <p>2013 2014 2015 2016 2017</p> <p><b>Date of Incident</b></p> <p><b>Number of Fatalities (n=210)</b></p> <p>2013 (n=43) 2014 (n=37) 2015 (n=35) 2016 (n=58) 2017 (n=38)</p> <p><b>Number of Fatalities per Incident</b></p> <p>1 2 3 4</p> <p><b>Type of Fatality</b></p> <p>Intimate Partner Homicide (IPH) Intimate Partner Suicide (IPS): Suicidal death as a result of Intimate Partner Violence Intimate Partner Homicide-Suicide (IPH-S) Collateral Fatality as a result of Intimate Partner Violence Killed by Law Enforcement (KLE) IPH and Collateral Fatality IPH and KLE IPH-S and Collateral Fatality Collateral Fatality and KLE IPS and Collateral Fatality</p> <p><b>Weapons Used/Method of Killing</b></p> <p>Yes = 1, No = 0</p> <p>Firearm Sharp Instrument Hanging Suffocation Strangulation Blunt Instruments</p> <p><b>Demographics of Perpetrator</b></p> <p><i>Gender</i></p> <p>Male Female Transgender Not Specified</p> <p><i>Age</i></p>	<p><b>H5:</b> There is a relationship between guns as weapon type and higher total number of fatalities per incident.</p> <p><b>H4a:</b> Firearms are the most common weapon in all IPV fatality incidents, followed by sharp instruments (such as knives).</p> <p><b>H3a:</b> Firearms are the most common weapon used in IPH cases of collateral child fatalities.</p> <p><b>H1a:</b> IPH is more likely to be perpetrated by males compared to females for the period 2013-2017.</p> <p><b>H1c:</b> IPH-S perpetration is more likely to be committed by males compared to females for the period 2013-2017.</p> <p><b>H1d:</b> IPV fatality perpetrators will have a greater mean age than IPV victims during the period 2013 – 2017.</p>

**Table of Variables and Relevant Hypotheses (continued)**  
**Intimate Partner Violence Fatalities 2013-2013**  
 Data Source: Denver Domestic Violence Coordinating Council

**Demographics of IPV Victim***Gender*

- Male
- Female
- Transgender
- Not Specified

*Age***Collateral Involvement**

- Yes = 1, No = 0
- Collateral Relationship (descriptive)

**Child Involvement in Incident**

Yes = 1, No = 0

- Type of Involvement
  - Collateral Fatality
  - On-Scene Witness
  - Present (but not Witness)
  - Other

**Incident County**

- Metro = 1
- Nonmetro adjacent to metro area = 2
- Nonmetro not adjacent to metro area = 3
- All rural, or population less than 2,500 = 4

**H1b:** IPH victimization is more likely to be experienced by females than males for the period 2013-2017.

**H2a:** Children are involved in at least 10% of IPH and IPH-S cases as a collateral fatality, injured, or as an on-scene witness.

**H2b:** Children involved in an incident are more likely to be witnesses rather than collateral fatalities.

**H3b:** When children are involved in fatality incidents, “all-rural” counties and “nonmetro counties not adjacent to a metro area” are more likely to produce a collateral child fatality than “metro” counties and “nonmetro counties adjacent to a metro area”.

**H4b:** IPV fatalities of any type are more likely to occur in all-rural counties and nonmetro counties not adjacent to a metro area than metro counties or nonmetro counties adjacent to a metro area.

**Appendix B: County Classification Table**  
*via USDA Rural Continuum Codes and Gallup-Black (2005) Collapsed Scale*

County	USDA	Gallup-Black (2005)	County	USDA	Gallup-Black (2005)
Adams	1	1	Kit Carson	7	3
Alamosa	7	3	Lake	6	2
Arapahoe	1	1	La Plata	4	2
Archuleta	7	3	Larimer	2	1
Baca	9	4	Las Animas	7	3
Bent	7	3	Lincoln	8	4
Boulder	2	1	Logan	7	3
Broomfield	1	1	Mesa	3	1
Chaffee	7	3	Mineral	9	4
Cheyenne	9	4	Moffat	7	3
Clear Creek	1	1	Montezuma	6	2
Conejos	9	4	Montrose	4	2
Costilla	9	4	Morgan	6	2
Crowley	8	4	Otero	6	2
Custer	8	4	Ouray	9	4
Delta	6	2	Park	1	1
Denver	1	1	Phillips	9	4
Dolores	9	4	Pitkin	7	3
Douglas	1	1	Prowers	7	3
Eagle	5	3	Pueblo	3	1
Elbert	1	1	Rio Blanco	9	4
El Paso	2	1	Rio Grande	7	3
Fremont	4	2	Routt	7	3
Garfield	5	3	Saguache	9	4
Gilpin	1	1	San Juan	9	4
Grand	7	3	San Miguel	9	4
Gunnison	7	3	Sedgwick	9	4
Hinsdale	9	4	Summit	5	3
Huerfano	6	2	Teller	2	1
Jackson	9	4	Washington	9	4
Jefferson	1	1	Weld	2	1
Kiowa	9	4	Yuma	7	3

USDA 2013 Rural-Urban Continuum Codes	
1	County in metro area, population 1 million+
2	County in metro area, population 250,000 to 1 million
3	County in metro area, population < 250,000
4	Urban population of 20,000+, adjacent to metro area
5	Urban population of 20,000+, not adjacent to metro area
6	Urban population of 2,500 to 19,999, adjacent to metro area
7	Urban population of 2,500 to 19,999, not adjacent to metro area
8	Completely rural or < 2,500 urban population, adjacent to metro area
9	Completely rural or < 2,500 urban population, not adjacent to metro area

USDA Code	Gallup-Black Code
1, 2, 3	1
4, 6	2
5, 7	3
8, 9	4

### Appendix C: Data Cleaning Notes

Delete Names of Victim/Perp

Delete Incident City

Delete Names of Children

Add Columns (Collateral Y/N; Collateral Relationship)

Change “Victim COD” to “Fatality’s COD”

Rename weapon as coded names based on CDC (i.e. knife = sharp object, hammer = blunt object)

Hands = No weapon

Rename (clarify for analysis based on lit review) type of fatality as

- IPH
- IPH-S
- IPS
- Collateral Fatality → not the DV victim or the DV perp
- KLE
- \*\*NOTE: No category exists for “attempted murder” or “attempted suicide”
- Combo fatalities

Reclassify “Victim” info as “DV Victim” info based on incident description – any fatality is listed in collateral/children info boxes (ASSUMPTIONS MADE); updated DV victim age/gender to reflect this change

Incidents with KLE only will have the “weapon” removed because having a gun listed will add to the number of guns used in IPH data. Combo IPH and KLE keep gun listed if used for IPH

2 incidents of IPH that were self defense

If multiple weapons, use main weapon that was used for IPH or fatality, not suicide or KLE

Children involvement has multiple children. Code reflects most severe thing (fatality, injured, on-scene witness, present not witness, other)

12/21/17 kid\_inv victim was a minor

3/16/17 kid\_inv child killed perp

10/14/13 kid\_inv children were the killers → fat\_type listed as “collateral fatality” bc it was result of IPV but not IPH

TOTAL NUM OF KIDS INVOLVED = 58 (37 incidents)

2013 - CLEANED

- Deleted 10/12/2013 because incident occurred in 2010 not 2013
- 10/14/2013 needs further consideration bc perps charged are teenage children

2014 – CLEANED

- 11/27/2014 could be self-defense
- 1/31/2014 deleted bc minor killed mother, DV not clear

2015 – CLEANED

- 4/17/2015 was listed as IPH-S by cop because perp exited RV shooting gun and cops killed him → relabeled as IPH and KLE
- 2/21/2015 deleted because perp is victim's daughter's fiancé, DV not clear

2016 – CLEANED

- 7/9/2016 victim and perp were flipped because victim stabbed perp in self-defense (no charges)

2017 – CLEANED

- 3/16/2017 dv victim's son killed dv perp bc he was assaulting the son's mother – listed as collateral fatality because not IPH or IPH-S
- 7/31/2017 Deleted because suicide not used for IPV and homicide happened in Louisiana

## Appendix D: Recommended Format for Future Data Spreadsheets

### Incident-Level Format

Date of Incident	IPV Victim Age	IPV Victim Gender	Perpetrator Age	Perpetrator Gender	Incident County	Collateral Involved? y/n	Children Involved? y/n	# of Children Involved	# Child Fatalities	Weapons Used? y/n	Type(s) of Weapon	Type(s) of Fatality	# Fatalities For Incident
1/1/2019	35	Female	38	Male	Arapahoe	y	y	3	1	y	sharp instrument	IPH & CF	3

### Fatality-Level Format

Date of Incident	Fatality Victim Age	Fatality Victim Gender	Perpetrator Age	Perpetrator Gender	Incident County	IPV Victim? y/n	Collateral Victim? y/n	Collateral Relationship	Child Victim? y/n	Weapons Used? y/n	Type(s) of Weapon	Type(s) of Fatality	# Fatalities For Incident
1/1/2019	64	Female	38	Male	Arapahoe	n	y	mother of IPV victim	n	y	sharp instrument	IPH & CF	3
1/1/2019	35	Female	38	Male	Arapahoe	y	n	n/a	n	y	sharp instrument	IPH & CF	3
1/1/2019	9	Male	38	Male	Arapahoe	n	y	child of IPV victim	y	y	sharp instrument	IPH & CF	3

### Child-Level Format

Date of Incident	Perpetrator Gender	Incident County	Child Age	Child Gender	Child Involvement	Weapons Used? y/n	Type(s) of Weapon
1/1/2019	Male	Arapahoe	9	Male	Fatality	y	sharp instrument
5/6/2019	Male	Larimer	7	Male	On-Scene Witness	y	firearm
5/6/2019	Male	Larimer	15	Female	Fatality	y	firearm
6/14/2019	Male	Pueblo	3	Female	Present	y	blunt instrument
6/14/2019	Male	Pueblo	4	Male	Fatality	y	blunt instrument
7/1/2019	Male	Denver	17	Male	Present	n	n/a

As you can see, for Incident 1/1/2019 in all 3 tables, the data is accounted for in varying formats.

However, pertinent data from the Incident Level is still included so analysis can be conducted across variables.

**Note: None of the spreadsheet data in this Appendix is factual. It was fabricated for the sole purpose of visual representation.**