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Comorbid Depression and Substance Abuse in Perpetrators of Domestic Homicide

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Abstract

Globally up to 38% of murdered women are victims of domestic homicide. However, research has yet to examine comorbid depression and substance abuse in domestic homicide, despite comorbid mental health conditions being associated with homicide in the general population. A retrospective case analysis approach was performed using domestic homicide cases that had been reviewed by the Domestic Violence Death Review Committee of Ontario. Group comparisons were made by compiling cases into groups based on perpetrator mental health status: a no mental illness group, depression only group, substance abuse only group, and comorbid depression and substance abuse group. Statistical analyses compared groups on number and types of risk factors and service provider contacts, as well as on other variables of interest. Results indicated unique patterns of risk factors and service provider contacts for each group of perpetrators. Recommendations for service providers who connect with perpetrators of domestic violence are discussed.

Keywords: domestic homicide, perpetrator, mental health, risk factor, service provider

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Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less. ― Marie Curie

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Literature Review

Domestic violence, also referred to as intimate partner violence, is defined by the World Health Organization (WHO, 2016) as "behaviour by an intimate partner or ex-partner that causes physical, sexual or psychological harm, including physical aggression, sexual coercion, psychological abuse, and controlling behaviours". It can occur in any type of relationship, including within same sex, opposite sex, married and divorced couples (WHO, 2016). Statistics indicate that domestic violence is perpetrated by more men than women and affects upwards of 35% of women worldwide (WHO, 2016). Highly dangerous cases of domestic violence can escalate into domestic homicide, whereby the current or former intimate partner kills the victim (Canadian Domestic Homicide Prevention Initiative, 2013). Globally up to 38% of murdered women are victims of domestic homicide and in Canada domestic homicides account for 20% of all homicides (Boyce & Cotter, 2013; WHO, 2016).

In their 2003 study of domestic homicide cases, Campbell et al. indicated the presence of risk factors which hint at the predictability of these murders. The authors identified risk factors such as access to weapons, separation from partner and prior domestic violence in the relationship which were associated with increased risk of domestic homicide (Campbell et al., 2003). Since risk factors are present before a murder occurs, these authors stressed that the identification of such factors could be used to prevent deaths (Campbell et al., 2003). Further studies have also highlighted the importance of examining risk factors to prevent future domestic violence and homicide (Abramsky et al., 2011; Hilton & Eke, 2017; Kropp, 2008; Messing &

Thaller, 2013). One foundational achievement in the examination of risk factors has been the formation of domestic violence death review teams globally (Fairbairn, Jaffe & Dawson, 2017).

Domestic Violence Death Review (DVDR)

Domestic violence death review (DVDR) teams world-wide have been examining cases of domestic homicide to deduce trends and risk factors that can inform domestic violence and homicide prevention techniques (Fairbairn et al., 2017). The DVDR teams are informing education and training into risk assessment and safety planning (Fairbairn et al., 2017). DVDR teams assist in making recommendations to professionals who assist victims and perpetrators of domestic violence to increase awareness of domestic homicide and promote the safety of victims (Fairbairn et al., 2017). These teams underscore the importance of on-going domestic homicide research in an effort to inform and provide comprehensive risk assessment, risk management and safety planning between and within all service providers.

The first DVDR team was formed in California after a high-profile case highlighted the need for thorough investigations of domestic homicide (Websdale, Town, & Johnson, 1999). The team aimed to prevent future domestic homicides by providing insight into when, why and how the California case and others in the United States had occurred (Websdale et al., 1999). Websdale et al. (1999) noted that domestic homicide cases seemed both predictable and preventable due to the presence of multiple risk factors. This team formation expanded into world-wide recognition, as United States counties, cities and states and countries across the world formed their own teams (Fairbairn et al., 2017). Countries which currently have DVDR teams include Canada, Australia, New Zealand and the United Kingdom (Fairbairn et al., 2017).

After two highly publicized cases of domestic homicide, Ontario, Canada formed a death review committee (Jaffe, Dawson & Campbell, 2013). To date, the Domestic Violence Death Review Committee (DVDRC) in Ontario has produced thirteen annual reports with recommendations for improvements in a variety of professional sectors, including criminal justice, child welfare and mental health care (DVDRC, 2016). The DVDRC (2016) has also outlined the presence of forty risk factors which may be associated with domestic homicide (see Appendices B and C). Some of the most frequently occurring risk factors in cases of domestic homicide include a history of domestic violence, actual or pending separation, obsessive behaviour, escalation of violence, prior attempts to isolate the victim, perpetrator depression and excessive drug use (DVDRC, 2016). Canada has five other provinces that have formed DVDR teams, including Alberta, British Columbia, Manitoba, New Brunswick and Saskatchewan (Campbell et al., 2016). Overall the DVDR teams, including the DVDRC, are critical in acquiring knowledge of domestic violence, including knowledge related to risk factors and the psychological correlates of domestic violence. Moreover, these teams are essential in informing government policy makers, legislators and service providers on this knowledge which assists victims and perpetrators of domestic violence globally.

Depression and Domestic Violence

At the forefront of the domestic violence literature is the examination of victim mental health due to the acute and chronic effects of domestic violence on well-being (Ferrari et al., 2016; Goodman, Fauci, Sullivan, DiGiovanni, & Wilson, 2016; Knight & Hester, 2016). However, a study by Sesar, Šimić and Dodaj (2015) highlights the importance of examining perpetrator mental health in addition to victim mental health. After conducting their review of the literature, the authors concluded that research findings concerning perpetrator mental health

are “insufficient” (Sesar et al., 2015). Sesar et al. (2015)’s conclusion emphasizes the need for investigations of perpetrator mental health since psychological disorders have been implicated as both predictors and outcomes of domestic violence in the literature (Jones, Hughes, & Unterstaller, 2001; Mason & O’Rinn, 2014; Mitchell & Anglin, 2009). For perpetrators, this bi-directional effect means that men experiencing mental health issues are at a higher risk for perpetrating domestic violence than the general population, and that men perpetrating domestic violence are at high risk of developing mental health issues (Mason & O’Rinn, 2014). Despite the scarcity of research, mental health issues including personality, anxiety, depression and substance use disorders have been found in perpetrators of domestic violence (Danielson, Moffitt, Caspi, & Silva, 1998; Dinwiddie, 1992; Graham, Bernards, Flynn, Tremblay, & Wells, 2012; Okuda et al., 2015; Rhodes et al., 2009; Shorey, Febres, Brasfield & Stuart, 2012).

Past investigations pursued the categorization of personality profiles to create distinct perpetrator typologies (Flournoy & Wilson, 1991; Hale, Duckworth, Zimostrad, & Nicholas, 1988; Holtzworth-Munroe & Stuart, 1994). One body of research, initiated by Holtzworth-Munroe and Stuart (1994), suggests that perpetrators fit three typologies, one of which, the borderline/dysphoric typology, encompasses perpetrators with high rates of depression. According to the WHO (2017a), depression is characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, tiredness and poor concentration. To receive a formal diagnosis of major depressive disorder an individual must have five or more depressive symptoms present over a two-week period, including symptoms of either depressed mood or loss of interest and pleasure (American Psychiatric Association (APA), 2013).

As discussed previously, research on depression in perpetrators of domestic violence is scarce due to investigations mainly focusing on depression as a by-product of victimization. However in Sesar et al. (2015)'s study the authors found that male perpetrators of domestic violence had significantly more depressive symptoms than control groups which stresses the need for more rigorous investigations of depressed perpetrators (Sesar et al., 2015). The presence of depression in perpetrators of domestic violence has also been established by a few other noteworthy studies (Dinwiddie, 1992; Lipsky et al., 2005; Rosenbaum, 1990). Lipsky et al. (2005) examined a sample of 384 African-American and Hispanic patients in an urban hospital emergency room. These authors found that depression was a predictor of domestic violence perpetration among their sample of both men and women (Lipsky et al., 2005). Though this study is limited in its generalizability due to race and context, other sources have also identified depression as a risk factor for domestic violence and domestic homicide (DVDRC, 2016; Rosenbaum, 1990).

Researchers have examined the association of depression with other constructs, such as irritability and anger, within violent contexts (Dutton & Karakanta, 2013). Dutton and Karakanta (2013) conducted a critical review where they speculated the causes for the association between depression and violent behaviours. The authors noted that depressed individuals tend to present with symptoms of lethargy and low mood (Dutton & Karakanta, 2013). However, Dutton and Karakanta (2013) observed that researchers and clinicians generally overlook a key determinant of aggression which tends to also be present in depression; irritability. Irritability can cause individuals to misperceive their internal dysphoria as being externally controlled, such as by an intimate partner, which causes anger, rumination and subsequent violent acts (Dutton & Karakanta, 2013). A meta-analytic review by Birkley and Eckhardt (2015) also found that

domestic violence perpetration was associated with depression and anger. The association with anger was found to be stronger among perpetrators of severe domestic violence, compared to perpetrators of low or moderate domestic violence which has important implications for domestic homicide research (Birkley & Eckhardt, 2015).

Homicide-suicide research, or investigations of cases where the perpetrator kills both themselves and their partner, has focused on perpetrator depression in particular, as many studies have found a significant relationship between the two (Eliason, 2009). In Dutton and Karakanta (2013)'s review on depression and aggression, the authors termed suicidality as "aggression to the self" because they found that it was prevalent in numerous cases of violence. Other authors have reported that the primary mental health diagnosis in perpetrators of homicide-suicide is depression (Eliason, 2009). The rates of depression among perpetrators of homicide-suicide varies, but has been estimated to be present in 20% to 65% of cases (Eliason, 2009). The cause for this high rate of depression among perpetrators of homicide-suicide is unknown, but some authors have speculated that the breakup of relationships could be a major factor in producing the depression and then instigating the subsequent homicide-suicide (Palermo et al., 1997). The DVDRC (2016)'s identification of separation being one of the top two risk factors for domestic homicide fits well with this notion. Another factor that could be involved is substance abuse, as Rosenbaum and Bennet (1986) found that depressed homicidal patients were more likely to be suicidal and engaged in alcohol and drug abuse than the non-depressed homicidal patients in their sample of 36 perpetrators.

Substance Abuse and Domestic Violence

Substance use disorder is classified as a "problematic pattern of using alcohol or another substance that results in impairment in daily life or noticeable stress" by the fifth edition of the Diagnostic and Statistical Manual (DSM-5) (APA, 2013). In order for an individual to be diagnosed with substance use disorder they must have two symptoms present over the past twelve months, including spending more time than intended using the substance, repeated use of the substance in dangerous situations and/or continuing the use of a substance despite it having negative effects on relationships with others (APA, 2013). The DSM-5 has a severity classification for substance use disorders to differentiate between mild (presence of two or three symptoms), moderate (presence of four or five symptoms) and severe (presence of six or more symptoms) cases (APA, 2013). Though the DSM-5 no longer uses the term substance abuse, the WHO (2017b) defines substance abuse as "the harmful or hazardous use of psychoactive substances, including alcohol and illicit drugs". Despite alcohol being cited as the most common drug used by Canadians, 11% of Canadians reported illicit drug use in 2013 (Canadian Centre on Substance Use and Addiction, 2017; Government of Canada, 2013).

The association between substance abuse and criminal behaviour is evident in correctional institutions, as Public Safety Canada (2015) cited that 75% of inmates have substance abuse problems upon incarceration. The association between substance abuse and domestic violence perpetration in particular has been demonstrated in various studies (Crane, Oberleitner, Devine & Easton, 2012; Fals-Stewart, Golden, & Schumacher, 2003; Humphreys, Regan, River, & Thiara, 2005; Kraanen, Scholing & Emmelkamp, 2012; Leonard, 2009; Stuart et al., 2008). In a study by Kraanen et al. (2012) which compared different offenders, over 30% of the perpetrators of domestic violence in their sample met the criteria for substance use

disorder and 25% of the perpetrators admitted to having been intoxicated by substances during their violent episodes. This study demonstrates both the chronic and acute role of substance abuse in relationships, as perpetrators who commit violence while intoxicated may not always engage in chronic usage. Some studies, like Kraanen et al. (2012), have investigated substance abuse across all types of substances, while others have examined alcohol consumption separate from illicit drug use. Sharps et al. (2001) classified 45% of perpetrators in their domestic homicide cases as problem alcohol drinkers and noted that 56% had engaged in illicit drug use. In another study researchers asked victims to report on their partners' alcohol consumption and 55% believed that their partner had been intoxicated by alcohol during violent encounters (United States Department of Justice, 1998). However, both alcohol and illicit drug abuse have been associated with domestic violence cases world-wide (Jeyaseelan et al., 2004).

Though the association between substance abuse and domestic violence has been supported, a direct causal link between substance abuse and domestic violence perpetration has not been established. Various authors have cited that substance abuse expectancy effects coupled with a reduction in cognitive processing increases the likelihood of violence (Chermack & Taylor, 1995; Critchlow, 1983; Heinz, Beck, Meyer-Lindenberg, Sterzer, & Heinz, 2011; Kachadourian, Quigley, & Leonard, 2014). However the lack of support for this causal relationship is likely due to the quantity and complexity of factors involved. Specifically, extraneous factors involving relationship dissatisfaction, poor mental well-being and idealized gender roles can increase the potential for violence to occur while intoxicated (Klostermann & Fals-Stewart, 2006; Murphy & O'Farrell, 1996). Furthermore a substantial part of the domestic violence literature demonstrates the detrimental effects of substance abuse, including loss of self-control, reduced conflict resolution skills, financial difficulties, and infidelity which all increase

the likelihood of violence perpetration (Room, Babor & Rehm, 2005; Shillington, Cottler, Compton, & Spitznagel, 1995). Though previous literature does not indicate a causal relationship between substance abuse and violence, it does indicate that violence may be exacerbated by substance abuse which makes it a key topic for inclusion in investigations of domestic homicide.

Comorbid Depression and Substance Abuse

Depression and substance abuse are important to investigate due to their relationships with domestic violence; however it is also crucial to consider the compounding effects of these two conditions. In the general population, one-third of individuals with major depressive disorder have a co-occurring substance use disorder which directly highlights the need to investigate comorbid depression and substance abuse in the perpetrator population (Davis et al., 2008). Comorbidity is defined by Merriam-Webster's Collegiate Dictionary (1999) as the simultaneous existence of medical conditions within an individual. In the mental health field comorbidity is more narrowly defined as the simultaneous existence of two or more mental health concerns within an individual. Comorbid mental health concerns can occur at the same time (concurrently) or at different points in time (successively). Furthermore, disorders within similar categories can co-occur in individuals, such as alcohol and cocaine use disorders, which is termed homotypic comorbidity, and dissimilar disorders can also co-occur, like depression and substance abuse, which is termed heterotypic comorbidity.

Though comorbid depression and substance abuse has been found in the general population, the mechanisms underlying the cause for their overlap remains unclear (Swendsen & Merikangas, 2000). Kessler and Price (1993) cited the potential for both direct and indirect associations to exist between the two conditions. Individuals struggling with substance abuse

may directly induce symptoms of depression through a pharmacological perspective (Kessler & Price, 1993). On the other hand, individuals struggling with depression may directly induce a substance use disorder due to the self-medicating effects of abusing drugs or alcohol (Kessler & Price, 1993). Lastly, the association may be indirect and mediated by extraneous factors, like job loss, divorce or separation (Kessler & Price, 1993). In their review, Swendsen and Merikangas (2000) reported that depression and alcohol abuse are risk factors for one another across a variety of clinical and community samples, but they also tend to amplify each other's symptomology when they co-occur. Furthermore, the authors reported that the most plausible explanation for the relationship between alcohol abuse and depression is that alcoholism tends to create impairment across a variety of domains, which tends to cause excess stress (Swendsen & Merikangas, 2000). This excess stress will then culminate and cause an individual to experience depression (Swendsen & Merikangas, 2000). The authors were unable to summarize casual models for substances other than alcohol due to an insufficient body of literature to draw upon, but did note an association between the abuse of substances other than alcohol and depression (Swendsen & Merikangas, 2000). Although investigations of comorbid mental disorders, such as comorbid depression and substance abuse, have not yet been extended to the domestic violence literature, comorbid mental health conditions have been further studied in the mental health literature.

Comorbid Mental Health Conditions and Violence

One aspect of the mental health literature centralizes on investigations of comorbid mental health conditions and their association to violence in general (Corrigan & Watson, 2005; Van Dorn, Volavka & Johnson, 2012). In a United States sample of over 5,000 people, researchers found that individuals with comorbid mental health conditions were more likely to have committed violent acts in the past twelve months than individuals without comorbid mental

health conditions (Corrigan & Watson, 2005). Importantly, this study also adjusted for demographic factors and found that psychiatric diagnosis was still a significant predictor of violence (Corrigan & Watson, 2005). In another study by Van Dorn et al. (2012), within their sample of over 34,000 adults, researchers found a strong relationship between individuals with co-occurring substance abuse and another mental illness, and perpetration of violence. However, both of these studies used self-report measures to examine violence perpetration which may not have fully captured actual perpetration. Despite this limitation, the findings of these studies suggest that comorbid depression and substance abuse is essential to consider in domestic violence, due to the association of comorbid mental disorders to violence in general.

Comorbid mental health conditions may also increase the likelihood of recidivism among perpetrators of domestic violence. In a study by Wilton and Stewart (2017), the authors found an increased risk of reconviction in their sample of inmates who had a comorbid mental condition with substance abuse, compared to their sample of inmates with only one mental illness. This study also found that inmates who had a comorbid mental health conditions with substance abuse had more past convictions and aggressive behaviour while institutionalized (Wilton & Stewart, 2017). This research relates well to findings presented by the DVDRC (2016) which includes historical domestic violence as a risk factor for future domestic violence and homicide. Thus, perpetrators of domestic violence with comorbid mental health conditions may be more likely to have committed past violence in their intimate partnerships and may be more likely to commit violence in the future as well. Overall this research indicates that examining comorbid mental health conditions in domestic violence and homicide contexts could help to inform risk management strategies aimed at reducing recidivism.

Homicide. The association between comorbid mental health conditions and homicide has also been investigated in the literature. Fazel, Gulati, Linsell, Geddes & Grann (2009) reported that individuals with comorbid substance abuse and other mental illnesses were at higher risk of committing homicide than individuals without comorbid mental health concerns. A study in the United Kingdom, which examined homicides that were committed by individuals in contact with mental health services between 1999 and 2003, found that 52% of their sample had at least one secondary diagnosis (Swinson & Shaw, 2007). Both of these studies provide further support for investigations of comorbid depression and substance abuse in domestic homicide, since comorbid mental health disorders have a relationship to homicidal behaviour. Merely the presence of multiple mental health concerns could put perpetrators at increased risk for committing domestic homicide.

Suicide. Comorbid depression and substance abuse is important to examine in domestic violence research because of the previously established relationships between both depression and substance abuse, and domestic violence and homicide perpetration. It is also a crucial condition to study because of its association to suicidality (Dhossche, Meloukheia, & Chakravorty, 2000; Sher et al., 2005). A study by Dhossche et al. (2000) found that suicidal intent was associated with male gender and comorbid depression and substance abuse among their sample of 1,136 psychiatric patients. Furthermore, in a study by Sher et al. (2005) 219 of their participants with depression and alcohol abuse had higher rates of aggression and suicidality than their depressed participants without alcohol abuse. Through the use of large sample sizes, both of these studies elucidate the role of comorbid depression and substance abuse and its association to, as termed by Dutton and Karakanta (2013), “aggression towards the self”.

Hence, it is also valuable if investigations of comorbid depression and substance abuse and domestic homicide consider the role of suicidality.

Domestic Violence and the Informal Social Control Model

The informal social control model originates from the criminological literature and outlines the ways in which conformity and social bonding prevent individuals from behaving in unacceptable manners (Silver, 2006). The underlying concept of this model suggests that social bonds between individuals are what creates stability and prevents negative outcomes, like violence, from occurring (Laub, Sampson, & Allen, 2001). Individuals with weak social bonds will be at increased risk of committing violence and other crimes due to the absence of moderation from their social bonds (Laub et al., 2001). Weak social bonds can be created through a variety of means, including through psychiatric and physical illnesses, divorce and separation, institutionalization, lack of empathy, or any other type of disenfranchisement to the creation of social connectedness (Silver, 2006).

The informal social control model has been investigated in a variety of contexts, including in two studies which sought to understand social connectedness and crime in community neighborhoods. Sampson, Raudenbush and Earls (1997) compared crimes rates in different United States neighborhoods and surveyed residents of the neighborhoods to gather information on their social connectedness. The researchers asked residents how likely they would intervene in different situations with their neighbors (Sampson et al., 1997). The research findings showed that neighborhoods with increased social connectedness, shown through neighbors having an increased willingness to intervene in different situations, had reduced crime and violence rates (Sampson et al., 1997). In another study conducted in Bejing, research

findings showed that though strong social connectedness in neighborhoods was not associated with less instances of domestic violence, it was associated with less severe injuries resulting from the violence (Emery, Wu, Kim, Pyun, & Chin, 2017). Each of these studies lends support to the notion that weak social bonds may produce negative outcomes culminating into both violence and homicide.

In a domestic homicide context, the informal social control model explains why perpetrators with comorbid mental health challenges would be at increased risk of committing domestic homicide. Perpetrators will have weak social bonds due to their mental health concerns and will not experience any disinhibition from their violent thoughts or feelings which will then lead them to action (Silver, 2006). The model further outlines that multiple factors maintain weak social bonds, so in cases of domestic homicide mental health is unlikely the sole reason for perpetration (Silver, 2006). Rather, mental health is only one factor involved in the creation of weak social bonds and in the formation of an individuals' inclination to commit violence or homicide. This notion is supported by research which demonstrates that the presence of mental illness only increases the risk of committing violence and that most individuals with mental illness do not actually commit violence (Hodgins, 2001).

Rationale of Current Study

Risk factors, including factors related to mental health, are important to research in domestic violence because they help to inform risk assessment strategies. In Ontario, currently only one organization is mandated to do risk assessments in cases of domestic violence; the police (Millar, Code & Ha, 2009). Risk assessments are used to assess the likelihood of domestic violence occurring again (recidivism), and assess the severity of future domestic violence (lethality) (Messing & Thaller, 2013). Current risk assessments used in Ontario include the

Ontario Domestic Assault Risk Assessment (ODARA) and the Spousal Assault Risk Assessment Guide (SARA) (Millar et al., 2013). Risk assessments were created to hone in on the most severe cases, in an effort to prioritize each case and capture the likelihood of serious injury or death (Millar et al., 2013). During risk assessments, police are determining which victims are unsafe and need protection from their perpetrator (Millar et al., 2013). Numerous service providers can come into contact with perpetrators of domestic violence and each has their own mandate on how to effectively deal with the violence through the usage of structured or unstructured risk management and safety planning techniques.

Mental Health Agencies

Despite the intersectionality of domestic violence and mental health, many mental health agencies do not have protocols in place, such as risk assessment, that address domestic violence with clients seeking mental health care. This is shown through recommendations from the DVDRC (2015) to have psychiatrists and counsellors directly trained in risk assessment, risk management and safety planning. The lack of domestic violence protocols in the mental health field causes a gap in the care and treatment of perpetrators. However, the mental health field does have an awareness of the implications of domestic violence as they have included it in the DSM-5 as a condition that requires extra clinical attention (APA, 2013). The inclusion of this discussion about domestic violence in the DSM-5 demonstrates that the mental health field views domestic violence as an issue. However, since most agencies do not have risk assessment protocols in place, a major gap exists in addressing the violence (Northcott, 2012). Thus research into the intersectionality of mental health and domestic violence could assist the mental health field in improving their domestic violence protocols and in placing more attention on the issue of domestic violence.

Other Service Providers

In terms of non-mental health service providers, such as health, justice and social services, there is also a divide in the assessment and management of perpetrators of domestic violence (Northcott, 2012). Many service providers will devise treatment protocols which target violent behaviour, but not mental health concerns. For instance, perpetrators who make contact with the legal system may be placed into batterer programs, such as the Partner Assault and Response (PAR) program (Public Health Service provider of Canada, 2012). However, some PAR programs exclude perpetrators who have mental health conditions, which causes a major sub-group of perpetrators to be ignored (Anger Management Centre of Toronto Inc., 2017). Therefore, research into the intersectionality of domestic violence and mental health can also inform service providers outside of the mental health field in regards to managing mental health concerns along with violence-specific concerns.

Service providers are also unable to provide comprehensive care to perpetrators of domestic violence when they are operating in silos. A review by Waalen, Goodwin, Spitz, Petersen and Saltzman (2000) showed that healthcare providers were unlikely to address domestic violence with victims and perpetrators due to a lack of training and dispersion of responsibility. The divide among and between service providers that come into contact with perpetrators of domestic violence illustrates the lack of comprehensive care across Canada (Northcott, 2012). Research into the mental health correlates of domestic homicide helps to bridge the gap and aims to create comprehensive and effective assessment and management protocols for all service providers working with perpetrators of domestic violence. In turn, these protocols can assist in the minimization of harm, and of deathly outcomes in domestic violence. Research into the mental health correlates of domestic homicide can also clarify what is needed

in cases of comorbidity, as individuals with multiple mental health concerns may have more contact with service providers due to the complexity of their mental health status. Therefore research into co-occurring depression, substance abuse and domestic homicide can help to inform policies and protocols across different sectors in Canada, including those in mental health, justice and social services.

Current Study

To our knowledge, no research to-date has explored the association of comorbid depression and substance abuse to domestic homicide. The absence of research into comorbid depression and substance abuse and domestic homicide is not only due to past investigations focusing on victim mental health and perpetrator typologies, but also due to a majority of mental health research utilizing perpetrator and victim self-reports to capture domestic violence information. Self-reports are useful in many research settings however they are subject to a social desirability bias which may invalidate victim or perpetrator self-reports on their own mental health. Here DVDR teams, like the DVDRC, play a large role in domestic homicide research because they gather information posthumously from a variety of sources, such as from police records and personal interviews with family, friends and co-workers of the victim and perpetrator. Obtaining reports from outside sources can help to validate whether perpetrators were indeed experiencing mental health challenges prior to the homicide.

To ensure the examination of domestic homicide, the current study retrospectively analyzed domestic homicide cases. The study separated perpetrators into four groups based on mental health status: a comorbid depression and substance abuse group, depression only group, substance abuse only group and no mental illness group. Based on previous literature, and due to the examination of domestic homicide cases, the current study's hypotheses were as follows:

1. There will be more risk factors present for perpetrators with comorbid depression and substance abuse than perpetrators with only depression, only substance abuse or no mental illness. This hypothesis is based on the DVDRC (2016)'s risk factors and the notion that complex mental health concerns will increase the presence of risk factors.
2. Perpetrators with comorbid depression and substance abuse will have a higher likelihood of perpetrating historical domestic violence in their relationship. This hypothesis is based on Corrigan and Watson (2005)'s research that comorbid mental health concerns have an association with violence.
3. Perpetrators with comorbid depression and substance abuse will have contact with significantly more service providers prior to the homicide than perpetrators with only depression, perpetrators with only substance abuse, and perpetrators with no mental illness. These service providers will include all those that provide criminal justice, mental health and social services. This hypothesis is based on the likelihood of service provider contact increasing with multiple mental health concerns.
4. Perpetrators with comorbid depression and substance abuse and perpetrators with only substance abuse will experience more contact with police than perpetrators with only depression or no mental illness. This hypothesis is based on the likelihood of police contact increasing with the abuse of substances.
5. Perpetrators with comorbid depression and substance abuse and perpetrators with only substance abuse will have a higher likelihood of having criminal histories than perpetrators with only depression or no mental illness. This hypothesis is based on research indicating that perpetrators who have comorbid mental health concerns with substance abuse have a higher likelihood of having past convictions (Wilton &

Stewart, 2017). This hypothesis is also based on perpetrators with substance abuse having reduced cognitive processing and conflict resolution skills which will increase the likelihood of involvement in crime (Heinz et al., 2011).

6. Perpetrators with comorbid depression and substance abuse and perpetrators with depression only will have a higher likelihood of being involved in homicide-suicide cases. This result is anticipated due to the relationship between suicidality and depression, and the relationship between suicidality and comorbid depression and substance abuse (Dhossche et al., 2000; Eliason, 2009; Sher et al., 2005).
7. Perpetrators with comorbid depression and substance abuse and perpetrators with substance abuse only will have a higher likelihood of having used substances at the time of the homicide. This hypothesis is based on the fact that perpetrators in both of these groups are struggling with addiction.
8. Perpetrators with comorbid depression and substance abuse will have less family support than perpetrators with only depression, only substance abuse or no mental illness. This hypothesis is based on the informal social control model and the presence of multiple mental health concerns reducing the likelihood of strong social bonds with family members (Silver, 2006).
9. Perpetrators with comorbid depression and substance abuse will have more third parties, including family, friends and/or co-workers, knowing about the domestic violence in their relationship compared to perpetrators with only depression, only substance abuse or no mental illness. This hypothesis is based on the notion that the more mental health concerns that are present, the more likely that other people are going to be aware of relationship issues, like domestic violence.

Overall, the purpose of this study is to elucidate whether comorbid depression and substance abuse has a different pattern of risk factors and service provider contacts than the presence of only depression, only substance abuse or no mental illness in perpetrators of domestic homicide. This research could aid in the development of risk assessment, risk management and safety planning protocols so that they are more comprehensive across Canada. Studies on perpetrator mental health, such as this one, will make significant contributions to both the mental health and domestic violence bodies of literature, in overall hopes of aiding in the prevention of violence against women.

Methodology

Data Collection

The current study used data from domestic homicide cases that have been reviewed by the DVDRC of the Office of the Chief Coroner for Ontario, Canada. The DVDRC in Ontario consists of twenty professionals in the domestic violence area, including health, criminal justice and social service professionals, who have reviewed 267 domestic homicide cases between 2003 and 2015 (DVDRC, 2016). These cases have involved 376 deaths since 2003; 67% have entailed homicides and 33% have entailed homicide-suicides. The DVDRC acts to compile information on perpetrators, including personal, familial and professional knowledge, in order to understand and prevent the occurrence of domestic homicide through the identification of risk factors (DVDRC, 2016). Reviews are made after all investigations and court proceedings have finished so some cases are reviewed several years after their occurrence. Out of the 267 cases reviewed by the DVDRC (2016), the researcher in the current study had access to the data from 219 of these cases.

The researcher took an oath of confidentiality and gained approval from the Western University Ethics Review Board before commencing the project (see Appendix A). All cases were identified by numbers in order to uphold confidentiality. A separate master list was kept for case identification information so that on a day-to-day basis the researcher was not exposed to personal identifying information. Furthermore, cases were kept on a two-layered password-encrypted computer in a locked room at Western University. Data was not transported outside of the room so all analyses of the data occurred on the same computer on which it was stored. Any non-identifiable data that was sent electronically was encrypted and password protected.

The dataset came from two pre-existing coding forms and one summary sheet used by the DVDRC to organize data from all cases.

DVDRC risk factor coding form. The first coding form (see Appendices B and C), the DVDRC risk factor coding form, was created by the DVDRC to code information pertaining to each of the DVDRC's 40 risk factors, including whether the risk factor was present (P), absent (A) or unknown (Unk) based on all compiled case reports. The coding form was used to infer perpetrator mental health status based on risk factors 26 to 29 and was also used for other risk factor information. Risk factor 26 documented cases where perpetrators appeared to be dependent and/or addicted to a substance which was used to infer substance abuse (see Appendices B and C). Risk factors 27 and 28 were used to infer depression and documented cases where perpetrators were either diagnosed with depression or had family, friends or acquaintances reporting that they displayed depressive symptoms (see Appendices B and C). Lastly, risk factor 29 was used to infer other mental health diagnoses, like psychosis, mania or obsessive-compulsive disorder, which was an exclusion criterion in this study (see Appendices B and C).

DVDRC data summary form. The second coding form (see Appendix D), the DVDRC data summary form, is a 15-page summary based on all case information, including perpetrator-specific information. This form was used to deduce socio-demographic information, service provider involvement, criminal history, case type, third party knowledge, and substance use at time of the homicide. Service provider involvement was noted from the agencies/institutions section of the coding form, which asked about the involvement of 34 different service providers including criminal justice, child welfare and mental health agencies. Third party knowledge was deduced by determining if there were prior reports of domestic violence in the relationship, and to who those reports were made.

DVDRC summary report. The DVDRC has a summary report of varying lengths for each case that the committee has reviewed. This report provided background information on the case and also included information about the homicide. The summary report was used to infer perpetrator family support for each case. The perpetrator was noted as having family support if their family was actively involved in the perpetrator's life before the homicide, as demonstrated by multiple references to the family in the summary report.

Procedure

The study was a retrospective case analysis and used quantitative data. Only cases that contained a male perpetrator and an adult female victim were examined. This inclusion criterion was due to male perpetrators and female victims being more prevalent in cases of domestic violence. Comparisons utilizing female perpetrators/male victims, male perpetrators/male victims, female perpetrators/female victims or child victims are important to study but unfortunately would not be meaningful in this study due to their underrepresentation in the

sample. Furthermore, since this study was examining perpetrator depression and substance abuse, cases in which perpetrators had other mental illnesses were excluded. This exclusion criterion was necessary in order to eliminate the compounding effects of other mental health conditions and thus make interpretations from the dataset more evident.

All cases which met the above inclusion criteria were examined. Cases were separated into four groups based on perpetrator mental health status. The first group, the "no mental illness" group, contained perpetrators who had no documented mental health diagnoses or symptoms. The second and the third groups, the groups with only one mental illness, contained perpetrators who had only depression and perpetrators who had only substance abuse respectively. The final group, the "comorbid" group, included perpetrators who had comorbid depression and substance abuse.

Case information provided on the DVDRC risk factor coding form, data summary form and summary report varied depending on the number of eye-witness reports and thoroughness of police investigations. Due to this, 65 cases were excluded due to not having enough information about perpetrator mental health in order to produce meaningful group comparisons.

Statistical Analyses

Chi-square tests of independence were used to compare the four mental health status groups on categorical dependent variables. Comparisons were made on types of risk factors, service provider contacts, criminal history, substance use at time of the incident, case type, third party knowledge, and familial support. Any cases where a variable being analyzed was unknown were excluded from that analysis. Fisher's exact test was employed for dependant variables where expected counts less than five made up more than 25% of the cells.

A one-way MANOVA was conducted to reduce the experiment-wise error rate that would have been incurred if separate ANOVAs were utilized for continuous dependent variables. In the MANOVA, number of risk factors and number of service providers were the dependant variables and mental health status was the independent variable. The independent variable had four levels, as indicated above, comprised of the comorbid group, depression only group, substance abuse only group and no mental illness group.

Secondary analyses were also performed due to the low sample sizes (as indicated below) in the comorbid group and the substance abuse only group. Since perpetrators in these groups all had substance abuse concerns, these groups were combined in the secondary analyses to create three groups in total: a no mental illness group, a depression only group and a combined difficulties group.

Results

Descriptive Statistics

In total 133 cases were excluded from the analyses due to not meeting the requirements for inclusion. Out of these cases 65 did not contain enough information to deduce perpetrator mental health status, 53 involved perpetrators with other psychiatric concerns, 8 involved child homicides and 7 involved same-sex couples or female perpetrators and male victims. Thus 86 cases were kept in the sample for analysis after meeting requirements for inclusion. The no mental illness group contained 30 perpetrators, the depression only group contained 28 perpetrators, the substance abuse only group contained 15 perpetrators and the comorbid depression and substance abuse group contained 13 perpetrators. All perpetrators in the substance abuse only group abused alcohol and 7 (47%) abused street drugs (ex. cocaine,

ecstasy, marijuana etc.) in combination with the alcohol. In the comorbid group 12 (93%) perpetrators abused alcohol and 4 (31%) abused street drugs in combination with the alcohol. One (8%) perpetrator in the comorbid group abused both alcohol and prescription medication and another perpetrator solely abused streets drugs.

Due to the aforementioned exclusion criteria, all perpetrators in the sample were male. Socio-demographic variables including perpetrator age, education and citizenship were categorized and subjected to Fisher's exact test (due to low expected cell counts) to determine whether there was an association between these socio-demographic variables and mental health status (see Table 1). No association was found between these socio-demographic variables and mental health status ($p > .05$) though these results should be interpreted with caution due to a large number of unknowns for education. Other descriptive information on length of relationship with the victim, number of children and psychiatric medication use at time of the homicide are presented in Table 1.

Table 1

Perpetrator Socio-Demographic Characteristics across Mental Health Status Groups

	Mental Health Status Groups			
	No Mental Illness (*n* = 30)	Depression Only (*n* = 28)	Substance Abuse Only (*n* = 15)	Comorbid (*n* = 13)
Age				
17 to 29	9 (30%)	1 (4%)	2 (13%)	4 (31%)
30 to 49	16 (53%)	13 (46%)	8 (53%)	4 (31%)
50 to 69	3 (10%)	10 (36%)	4 (27%)	5 (39%)

70 to 89	2 (7%)	4 (14%)	1 (7%)	0 (0%)
Highest Education				
Elementary School	1 (3%)	1 (4%)	0 (0%)	1 (8%)
High School	11 (37%)	6 (21%)	2 (13%)	4 (31%)
Post-Secondary	6 (20%)	6 (21%)	1 (7%)	2 (15%)
Unknown	12 (40%)	15 (54%)	12 (80%)	6 (46%)
Citizenship				
Canadian	21 (70%)	19 (68%)	12 (80%)	10 (77%)
Indigenous	1 (3%)	6 (21%)	1 (7%)	1 (8%)
Immigrant/ Refugee	7 (23%)	6 (21%)	2 (13%)	2 (15%)
Unknown	1 (3%)	2 (7%)	0 (0%)	0 (0%)
Number of Children *M*(*SD*)	1.10 (1.13)	2.43 (1.50)	1.60 (1.72)	2.08 (1.80)
Length of Relationship				
Less than 1 year	7 (23%)	0 (0%)	2 (13%)	0 (0%)
1 to 10 years	15 (50%)	12 (43%)	6 (40%)	5 (39%)
11 to 20 years	2 (7%)	6 (21%)	2 (13%)	1 (8%)
21 to 30 years	5 (17%)	2 (7%)	2 (13%)	5 (39%)

30+ years	1 (3%)	8 (29%)	2 (13%)	2 (15%)
Unknown	0 (0%)	0 (0%)	2 (13%)	0 (0%)
Psychiatric Medication at time of Incident				
Yes	0 (0%)	2 (7%)	0 (0%)	3 (23%)
No	14 (47%)	15 (54%)	3 (20%)	5 (39%)
Unknown	16 (53%)	11 (39%)	12 (80%)	5 (39%)

Chi-Square Analyses

Risk factors. All risks factors previously identified by the DVDRC (2016) (see Appendices B and C) except for the four factors specific to mental health were subjected to chi-square tests for perpetrator mental health status groups. Several of the DVDRC (2016) risk factors had more than 25% of their cells with expected counts less than 5; these factors were instead subjected to Fisher's exact test (as reported below) due to violating a major assumption of chi-square. Escalation of violence had an expected count less than five for one cell, but this was below 25% of the cells so a chi-square test was performed for this variable.

Utilizing chi-square analyses, historical violence, separation, new partner, unemployment, threats to kill victim and victim intuitive fear were not found to be significant (see Table 2). However, obsessive behaviour, prior threats of suicide, and escalation of violence were found to be statistically significant for perpetrator mental health status groups (χ^2 (3, N = 82) = 7.95, $p < .05$; χ^2 (3, N = 74) = 16.08, $p = .001$; χ^2 (3, N = 80) = 9.10, $p < .05$ respectively). These associations were all moderate with Cramer's V (.31; .47; .34 respectively) (Cohen, 1988).

Post hoc analyses were conducted using adjusted standardized residuals and an alpha level of .006 with the Bonferroni Correction. No significant differences were found for obsessive behaviour or escalation of violence ($p > .01$). For prior threats of suicide, results for the no mental illness and depression only groups were significant ($p < .01$ for both). Perpetrators with no mental illness were less likely to have threatened to die by suicide (19%; $n = 5$) and perpetrators with depression only were more likely to have threatened to die by suicide (71%; $n = 17$).

Table 2

Non-Significant Risk Factors in Chi-square Analyses

		No Mental Illness (n = 30)	Depression Only (n = 28)	Substance Abuse Only (n = 15)	Comorbid (n = 13)	
Risk Factors	*N*	n (%)	n (%)	n (%)	n (%)	χ^2
History of violence outside of family	82	9 (31%)	9 (36%)	10 (67%)	7 (54%)	6.25
Separation	84	18 (62%)	18 (64%)	6 (43%)	11 (85%)	5.08
New partner	81	11 (41%)	12 (44%)	3 (21%)	4 (31%)	2.48
Unemployment	84	7 (24%)	10 (36%)	8 (57%)	5 (39%)	4.54
Threats to kill victim	78	10 (37%)	9 (33%)	6 (46%)	5 (46%)	0.88
Victim intuitive fear	80	12 (40%)	10 (44%)	8 (57%)	7 (54%)	1.51

Note. $df = 3$.

Service providers. For service providers, court judges, crown attorneys, defense counsel, corrections, probation, parole, criminal court, family court, family lawyer, school, child protection, mental health providers, mental health program, health care providers, local hospital, ambulance services, anger management, marriage counselling, substance abuse program, religious contacts, immigrant advocacy, animal control, cultural organization and fire department had 25% or more of their cells with an expected count of less than 5. Thus, due to violating a major assumption of chi-square, Fisher's exact tests were employed for these variables (as reported below). Court-based legal advocacy, victim witness assistance program, domestic violence shelter, sexual assault program, other domestic violence victim service, community based legal advocacy, batterer intervention program, supervised visitation and homeless shelter contacts were also not subjected to chi-square analyses since no perpetrators in any mental health status group had made these points of contact.

Police contact was subjected to a chi-square test for perpetrator mental health status and obtained a statistically significant result (χ^2 (3, N = 85) = 18.15, p < .001). This association was moderate with Cramer's V equal to .46 (Cohen, 1988). A post hoc analysis was conducted, again utilizing adjusted standardized residuals and a Bonferroni correction of .006, and it was found that the perpetrators with substance abuse only group significantly differed (p < .001). Perpetrators with substance abuse only were more likely to have had contact with police (87%; n = 13).

Criminal history. A chi-square test of independence was performed to examine the relation between perpetrator mental health status and criminal history. The relationship between these variables was significant (χ^2 (3, N = 84) = 23.14, p < .001) and this association was large as per obtaining a Cramer's V equal to .53 (Cohen, 1988). Both the comorbid and substance abuse

groups had results which were significant for criminal history (p = .005 and p = .001 respectively). Perpetrators with comorbid depression and substance abuse, and perpetrators with only substance abuse were more likely to have had criminal histories (85%; n = 11 and 87%; n = 13 respectively).

Case type. Case types were categorized into two groups based on whether a homicide or a homicide-suicide had occurred. The homicide-suicide categorization included eight cases where a perpetrator had unsuccessfully attempted suicide. A chi-square test was then performed and the test result was significant for perpetrator mental health statuses (χ^2 (3, N = 86) = 12.65, p < .01). This association was moderate (Cramer's V = .38) (Cohen, 1988). A post analysis was performed and the depression only group was found to have a statistically significant result (p < .001). Perpetrators with depression only were more likely to have been involved in homicide-suicide cases (71%; n = 20).

Substance use. Perpetrator substance use at the time of the homicide was also subjected to a chi-square test for the perpetrator mental health statuses. Substance use at the time of the homicide was found to be significant (χ^2 (3, N = 50) = 28.99, p < .001) and this association was large (Cramer's V = .76) (Cohen, 1988). A post hoc analysis was conducted and all mental health status groups obtained statistically significant results (no mental illness, p = .006; depression only, p = .001; substance abuse only, p = .001; comorbid, p = .001). As was anticipated based on mental health status groupings, perpetrators with no mental illness and perpetrators with depression only were more likely to not be using substances at the time of the homicide (85% and 87% respectively). On the contrary, perpetrators with comorbid mental health and substance abuse only were more likely to be using substances at the time of the homicide (91% for both).

Third party knowledge and family support. Both third party knowledge and family support were found to have more than 25% of their cells with expected values less than of 5. These variables were subjected to Fisher's exact test due to violating an assumption of chi-square.

Fisher's Exact Test

Risk factors. Several risk factors, including witnessing/experience abuse, witnessing/experiencing suicide, youth, age disparity, common-law, custody disputes, presence of step children, prior suicide attempts, failure to comply with authority, sexual jealousy, misogynistic attitudes, destruction of property, historical domestic violence with current and former partners, threats and assault with weapon, isolation of victim, control of victim, access to firearms, hostage taking, sexual acts, choking, violence to family pets, assault while pregnant, threatening or harming children, minimization of assaults and access to victim after risk assessment did not meet the chi-square assumption of less than 25% of cells with an expected count less than 5. All of these variables were instead subjected to Fisher's exact test (see Table 3).

In terms of risk factors, witnessing/experiencing abuse, common-law, failure to comply with authority, destruction of property, assault with weapon, hostage taking and minimization of assaults all obtained significant results with Fisher's exact test (see Table 3). Post hoc analyses, executed exactly as outlined above for the chi-square analyses, were employed for each of these risk factors to determine which cells were statistically significant. A Bonferroni correction yielding a value of .006 was also used. Witnessing/experiencing abuse, failure to comply with authority, destruction of property, and minimization did not receive statistically significant

results in the post hoc analyses. Living in common-law relationships received a statistically significant post hoc result ($p < .001$), with perpetrators who were in the substance abuse only group having a reduced likelihood of having married the victim (47%; $n = 7$). Assault with a weapon was also found to be statistically significant in the post hoc analysis ($p < .001$), with perpetrators in the substance abuse only group having a higher likelihood of having a prior assault with a weapon (50%; $n = 6$). Lastly, hostage-taking was statistically significant ($p = .001$), with perpetrators with comorbid depression and substance abuse having a higher likelihood of having engaged in hostage-taking behaviour (39%; $n = 5$).

Table 3

Fisher's Exact Test Results for Risk Factors

		No Mental Illness (n = 30)	Depression Only (n = 28)	Substance Abuse Only (n = 15)	Comorbid (n = 13)		
Risk Factors	*N*	*n* (%)	*n* (%)	*n* (%)	*n* (%)	Test value	Cramer's V
historical dv with former partners	24	5 (63%)	5 (63%)	4 (80%)	3 (100%)	1.72	.58
historical dv with current partner	77	19 (68%)	17 (71%)	12 (86%)	11 (100%)	5.69	-
threats with a weapon	74	4 (14%)	5 (20%)	5 (46%)	4 (44%)	6.48	-
assault with a weapon	75	3 (10%)	2 (8%)	6 (50%)	0 (0%)	10.84 **	.45
prior suicide attempts	72	1 (4%)	6 (25%)	1 (9%)	3 (25%)	5.45	-
isolation of victim	82	9 (31%)	9 (33%)	3 (23%)	8 (62%)	4.71	-

control of victim	81	8 (29%)	9 (33%)	3 (23%)	9 (69%)	7.36	-
hostage taking	83	0 (0%)	3 (11%)	2 (15%)	5 (39%)	11.63**	.39
sexual acts	66	1 (4%)	2 (9%)	1 (10%)	0 (0%)	1.41	-
custody disputes	84	1 (3%)	0 (0%)	0 (0%)	0 (0%)	2.37	-
destruction of property	83	1 (3%)	2 (7%)	5 (36%)	5 (39%)	12.94**	.41
violence to family pets	86	0 (0%)	1 (4%)	0 (0%)	1 (8%)	2.90	-
assault while victim pregnant	75	0 (0%)	1 (4%)	2 (14.3%)	0 (0%)	4.01	-
choking	65	4 (17%)	4 (18%)	6 (50%)	1 (14%)	5.19	-
witnessing/ experienced childhood abuse	45	2 (14%)	6 (43%)	2 (29%)	7 (70%)	7.87*	.43
common-law	85	4 (14%)	4 (14%)	8 (53%)	2 (15%)	9.34*	.37
presence of step children	85	2 (7%)	2 (7%)	2 (14%)	1 (8%)	1.21	-
minimization of assaults	74	1 (4%)	4 (17%)	3 (27%)	4 (36%)	7.90*	.32
access to firearms	85	6 (20%)	10 (37%)	5 (33%)	3 (23%)	2.42	-
failure to comply with authority	84	8 (27%)	3 (11%)	6 (43%)	6 (46%)	7.78*	.30
witnessed/ exposed to family suicide	45	0 (0%)	1 (6%)	0 (0%)	0 (0%)	2.69	-

access to victim after risk assessment	81	3 (10%)	1 (4%)	2 (14%)	1 (8%)	1.53	-
youth	86	6 (20%)	1 (4%)	1 (7%)	3 (23%)	5.19	-
sexual jealousy	74	9 (33%)	7 (29%)	2 (17%)	7 (64%)	5.73	-
misogynistic attitudes	68	8 (32%)	6 (27%)	3 (25%)	5 (56%)	2.65	-
age disparity	86	6 (20%)	4 (14%)	3 (20%)	1 (8%)	1.20	-
threatening or harming children	77	3 (11%)	5 (22%)	4 (29%)	5 (42%)	5.18	-

Note. dv = domestic violence.

*$p < .05$. **$p < .01$

Service providers. Fisher's exact test yielded statistically significant results for court judges, crown attorneys, defense counsel, corrections, probation, criminal court, mental health providers, health care providers and substance abuse programs (see Table 4). Post hoc analyses, as outlined above, were utilized to deduce which cells were statistically significant for each of these variables. Perpetrators with depression only had a significantly ($p = .001$) reduced likelihood of having had contact with court judges (4%; $n = 1$) and also had a significantly ($p = .003$) reduced likelihood of having had contact with defense counsel (4%; $n = 1$). Similar to the previous police contact chi-square results, perpetrators with substance abuse only had a significantly ($p = .004$) increased likelihood of having had contact with corrections (33%; $n = 5$). For contact with probation, perpetrators with depression only had a significantly ($p = .001$) reduced likelihood of having had contact (0%; $n = 0$) and perpetrators with substance abuse only had a significantly ($p = .002$) increased likelihood of having had contact (53%; $n = 8$). Perpetrators with no mental illness were significantly ($p = .006$) less likely to have had contact

with a healthcare provider (7%; *n* = 2). Lastly, for contact with substance abuse programs, perpetrators with comorbid depression and substance abuse had a significantly ($p < .001$) increased likelihood of having had contact (39%; *n* = 5). There were no statistically significant results obtained for crown attorney, criminal court or mental health provider contacts in the post hoc analyses.

Table 4

Fisher's Exact Test Results for Service Providers

		No Mental Illness (*n* = 30)	Depression Only (*n* = 28)	Substance Abuse Only (*n* = 15)	Comorbid (*n* = 13)		
Service Providers	*N*	*n* (%)	*n* (%)	*n* (%)	*n* (%)	Test value	Cramer's V
court judges	85	10 (33%)	1 (4%)	7 (47%)	4 (31%)	12.77**	.37
crown attorneys	85	7 (23%)	1 (4%)	6 (40%)	1 (8%)	9.79*	.35
defense counsel	85	9 (30%)	1 (4%)	6 (40%)	4 (31%)	10.56*	.33
corrections	85	4 (13%)	0 (0%)	5 (33%)	1 (8%)	9.72*	.35
probation	85	7 (23%)	0 (0%)	8 (53%)	4 (31%)	18.27**	.44
parole	85	2 (7%)	1 (4%)	3 (20%)	0 (0%)	3.94	-
criminal court	85	8 (27%)	1 (4%)	5 (33%)	3 (23%)	7.98*	.29
family court	85	2 (7%)	1 (4%)	0 (0%)	1 (8%)	1.44	-
family lawyer	83	3 (10%)	3 (12%)	0 (0%)	2 (17%)	2.45	-
school	79	2 (7%)	0 (0%)	0 (0%)	2 (17%)	4.45	-
child protection	86	2 (7%)	3 (11%)	1 (7%)	0 (0%)	1.32	-

mental health providers	80	1 (3%)	8 (32%)	0 (0%)	5 (42%)	14.99 **	-
mental health programs	82	0 (0%)	1 (4%)	0 (0%)	0 (0%)	2.62	-
health care providers	81	2 (7%)	10 (39%)	1 (8%)	7 (54%)	15.15 **	.44
local hospital	85	0 (0%)	3 (11%)	1 (7%)	2 (15%)	4.83	-
ambulance services	83	0 (0%)	3 (11%)	0 (0%)	1 (9%)	4.44	-
anger management programs	84	1 (3%)	0 (0%)	1 (7%)	1 (8%)	2.74	-
marriage counselling	85	2 (7%)	2 (7%)	0 (0%)	3 (23%)	4.16	-
substance abuse programs	84	0 (0%)	0 (0%)	3 (21%)	5 (39%)	17.25 **	.50
religious contact	84	6 (20%)	4 (15%)	1 (7%)	1 (8%)	1.52	-
immigrant advocacy	83	1 (3%)	1 (4%)	0 (0%)	0 (0%)	1.24	-
animal control	85	0 (0%)	0 (0%)	0 (0%)	1 (8%)	4.08	-
cultural organization	82	0 (0%)	1 (4%)	0 (0%)	0 (0%)	2.63	-
fire department	85	0 (0%)	2 (7%)	1 (7%)	0 (0%)	2.96	-

Note. *$p < .05$. **$p < .01$

Third party knowledge and family support. Family support and third party knowledge from friends, family, co-workers and neighbours were all subjected to Fisher's exact tests. None of these variables obtained statistically significant results ($p > .05$) for perpetrator mental health status groups (see Table 5).

Table 5

Fisher's Exact Test Results for Third Party Knowledge and Family Support

Variables	*N*	No Mental Illness (*n* = 30) *n* (%)	Depression Only (*n* = 28) *n* (%)	Substance Abuse Only (*n* = 15) *n* (%)	Comorbid (*n* = 13) *n* (%)	Test value
family member knowledge	77	23 (82%)	21 (84%)	12 (92%)	11 (100%)	2.29
friend knowledge	71	20 (80%)	17 (74%)	11 (92%)	10 (91%)	2.03
co-worker knowledge	59	10 (48%)	11 (55%)	2 (20%)	5 (63%)	4.14
neighbor knowledge	56	12 (52%)	8 (47%)	8 (80%)	4 (67%)	3.23
family support	64	17 (77%)	13 (59%)	8 (80%)	8 (80%)	2.48

MANOVA

A MANOVA was used to determine whether the mental health status groups differed in number of risk factors or number of service provider contacts. For risk factors, perpetrators could have up to 36 present (excluding the 4 mental health risk factors) (see Appendices B and C) and for service providers perpetrators could have up to 34 contacts (see Appendix D).

Assumption testing. Prior to conducting the MANOVA, assumption testing was performed to ensure that the MANOVA would produce valid results for comparisons between the dependant variables (risk factors and service providers) and the independent variable (mental health status). Assumptions of multivariate normality, homogeneity of variance and absence of univariate outliers were all violated. Multivariate normality was absent for service providers in the no mental illness, depression only and comorbid groups as assessed by Shapiro-Wilk ($p <$

.001, $p < .001$ and $p = .004$ respectively). Multivariate normality was also absent for risk factors in the no mental illness group ($p < .05$). In terms of outliers, for service providers there were two univariate outliers detected with values greater than 1.5 box-lengths from boxplot inspection in the depression only group. These outliers were checked and were not determined to have resulted from data entry or measurement error so they were kept in the dataset. Lastly, homogeneity of variances was violated for service providers ($p < .01$). In an effort to make the service providers data normally distributed, reduce the effects of the univariate outliers and correct for unequal variances, a log transformation was utilized on the data. However, since MANOVA is relatively robust to deviations of normality, the risk factor data was not transformed.

Assumption testing was re-executed to ensure that the transformed data for service providers and existing data for risk factors met all MANOVA assumptions. No multicollinearity was detected as per the Pearson correlation ($r = .44$, $p < .001$) and there were linear relationships between the dependant variables and each mental health status group, as assessed by scatterplot matrices. Homogeneity of variance-covariance was tested by Box's test of quality of covariance matrices and was found to be present ($p = .45$). Furthermore, with Levene's Test, homogeneity of variances was present for both risk factors ($p = .11$) and service providers ($p = .24$). Multivariate outliers and univariate outliers were also absent, as assessed by Mahalanobis distance ($p > .001$) and boxplots respectively. Despite having transformed the service providers data, the no mental illness, depression only and comorbid groups still failed to meet the assumption of normal distribution as per Shapiro-Wilk ($p = .001$, $p = .014$ and $p = .01$ respectively). However, upon examining skewness and kurtosis z-scores and using a statistical significance level of .01, the data was considered to be normally distributed since all scores were within +/-2.58 (see Table 6). Thus despite the transformed service provider data and existing risk

factor data failing Shapiro-Wilk tests, the MANOVA was run due to the calculated z-scores suggesting a normal distribution and due to the robustness of MANOVA from deviations of normality.

Table 6

Skewness and Kurtosis Z-scores for Failed Independent Variable Levels

Dependant Variables by Independent Variable Levels	Skewness	Skewness *SE*	Z-score	Kurtosis	Kurtosis *SE*	Z-score
Service Providers						
No Mental Illness Group	0.42	0.43	0.97	-1.3	0.83	-1.56
Depression Only Group	0.53	0.44	1.20	-0.06	0.86	-0.08
Comorbid Group	0.30	0.62	0.05	-1.87	1.19	-1.57
Risk Factors						
No Mental Illness Group	0.11	0.43	0.03	-1.44	0.83	-1.73

Note. SE = standard error.

Outcome. The multivariate result for risk factors and service providers in mental health status was significant (F (6, 164) = 3.82, p = .016; Pillai's Trace = .180, partial η^2 = .09). The test of between-subjects effects was also significant for mental health status groups in both risk factors (F (3, 82) = 2.79, p < .05; partial η^2 = .093) and service providers (F (3, 82) = 3.97, p < .05, partial η^2= .127). Since the F ratio was significant for the between-subjects effect in risk factors and service providers, it indicated that at least one set of the means between the no mental illness, depression only, substance abuse only and comorbid groups were significantly different for both dependant variables. Scheffe post hoc tests were chosen due to unequal group sizes and

were performed in order to deduce which means were significantly different. For risk factors there were no significant differences ($p > .05$) between groups, however the comparison between the no mental illness group and comorbid group was reaching significance ($p = .06$). Overall, means showed a trend of no mental illness < depression only < substance abuse only < comorbid in number of risk factors (see Table 7; see Figure 1 for a visualization). There were also no significant differences ($p > .05$) between groups for service providers, however the comparison between the depression only group and the substance abuse only group was reaching significance ($p = .06$). Through examining the original data, means showed a trend of depression < no mental illness < substance abuse < comorbid in number of service provider contacts (see Table 7; see Figure 2 for a visualization).

Table 7

Descriptive Statistics for Risk Factors and Service Providers

		Risk Factors		Service Providers (not transformed)		Service Providers (log transformed)	
Mental Health Status Groups	*n*	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
No Mental Illness	30	6.87	4.62	2.63	3.16	.40	.37
Depression Only	28	8.35	5.57	1.89	2.44	.35	.30
Substance Abuse Only	15	9.80	7.07	4.13	2.62	.64	.28
Comorbid	13	12.15	6.84	4.38	3.73	.63	.31

Note. A log transformation was used on service provider data for the MANOVA.

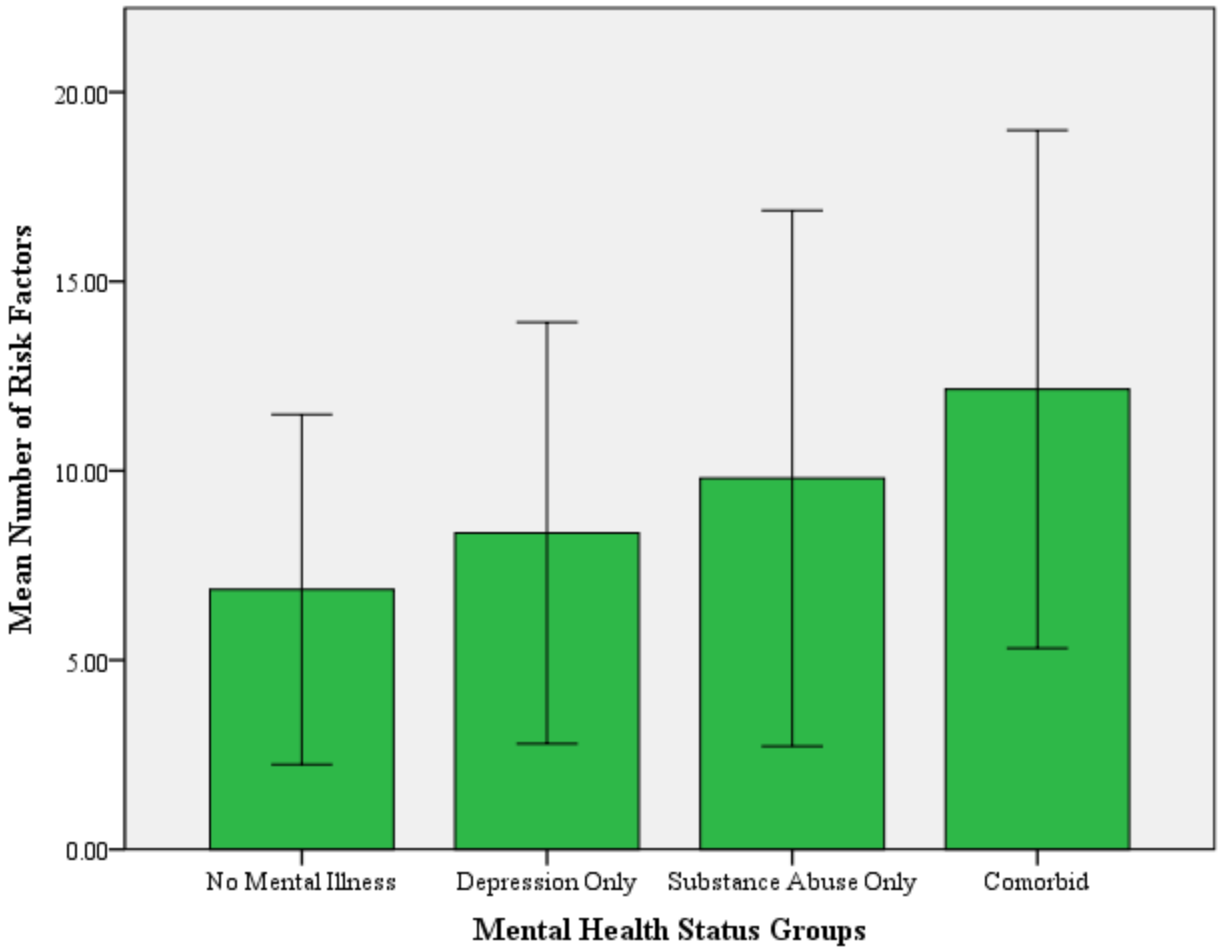

Figure 1. Number of risk factors across mental health status groups. Standard deviations are represented in the figure by the error bars attached to each column.

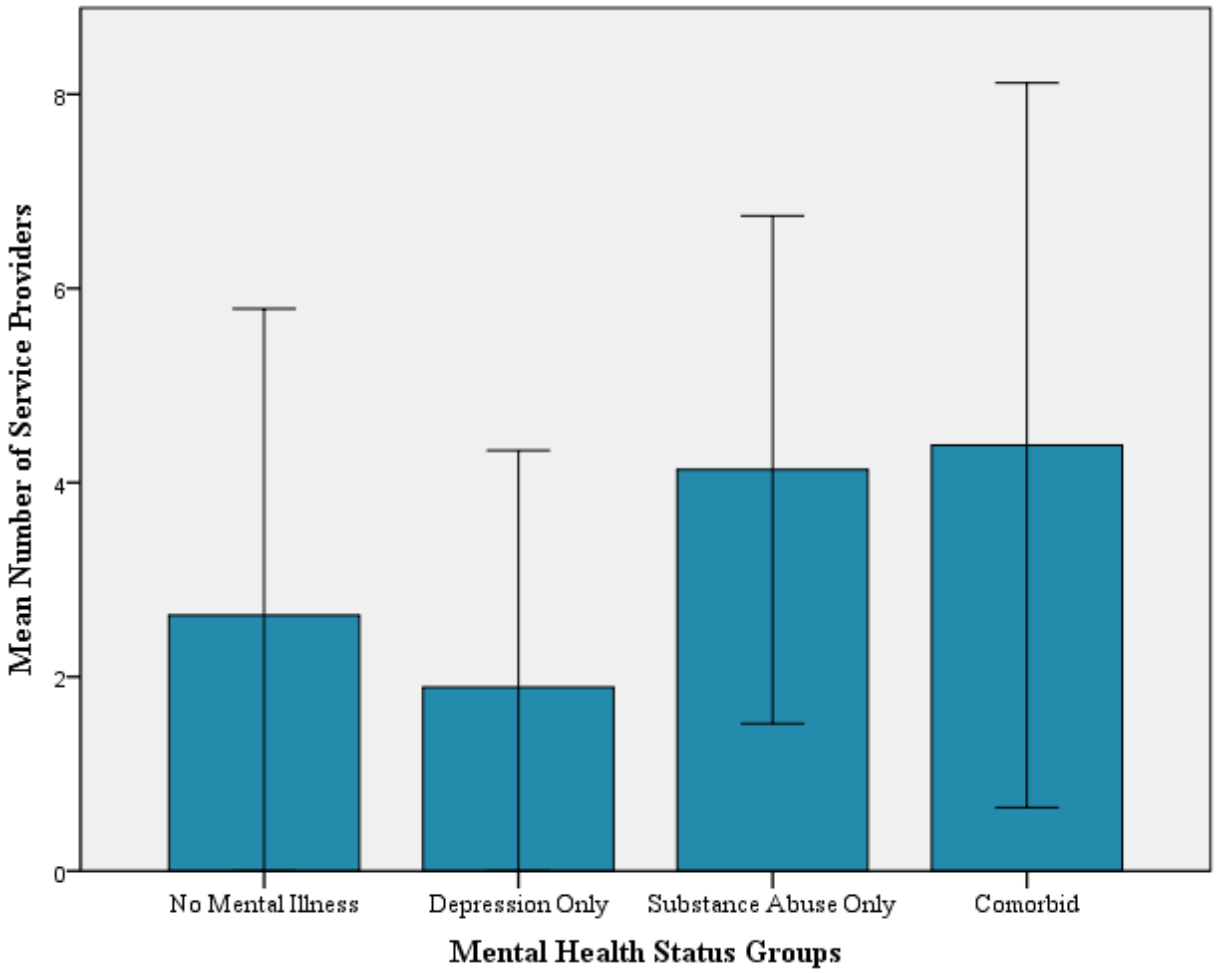

Figure 2. Number of service provider contacts across mental health status groups. This figure was produced using the original data. Standard deviations are represented in the figure by the error bars attached to each column.

Secondary Analyses

Due to low sample sizes in the substance abuse only and comorbid groups, and with an intention to determine the impact of substance abuse on risk factors and service provider contacts, the substance abuse only and comorbid groups were collapsed to create a "combined difficulties" group. Thus, all analyses specific to risk factors and service providers were re-run to

compare between the newly-created three mental health status groups (no mental illness, depression only and combined difficulties).

Descriptive statistics. Since the substance abuse only and comorbid groups were combined, there were a total of 28 cases in the combined difficulties group, and the no mental illness and depression groups remained at sample sizes of 30 and 28 respectively. As outlined above (see Table 1), socio-demographic variables, including age, education, and citizenship were categorized and subjected to Fisher's exact test (due to low cell expected values) to determine whether there was an association between these variables and the three mental health status groups. Perpetrator age achieved statistically significant results ($p = .03$, Cramer's V = .27). However, with a post hoc analysis and a Bonferroni correction of .004, none of the mental health status groups received statistically significant results for the age categories ($p > .01$).

Chi-square analyses.

Risk factors. DVDRC (2016) risk factors were analyzed for the three mental health status groups in the same manner as outlined above. Of the 36 risk factors, 21 of them met the assumption of 25% or less of their cells having expected counts less than 5. Of these 21 risk factors, prior threats with a weapon, prior threats to die by suicide, escalation of violence and failure to comply with authority achieved statistically significant results (see Tables 2 and 3 for descriptive information and Table 8 for chi-square results). History of violence outside the family, common law relationship, historical domestic violence with current partner and abused/witnessed abuse as a child were all approaching significance ($p = .05$; $p = .08$, $p = .09$ and $p = .10$ respectively) (see Table 8). Post hoc analyses were conducted to elucidate where differences existed. These post hoc analyses were executed in the same manner as outlined above, except an alpha level of .008 was used with the Bonferroni Correction to account for less

cell comparisons. Only prior threats to die by suicide resulted in significance (p = .001), with the no mental illness group having 81% (n = 21) of cases without prior threats.

Table 8

Chi-square Results for Risk Factors in Secondary Analyses

Risk Factors	χ^2	Cramer's V
history of violence outside family	5.77	-
historical dv with current partner	4.95	-
threats to kill victim	0.87	-
threats with a weapon	6.65*	.30
threats to die by suicide	13.47**	.43
isolation of victim	0.84	-
control of victim	1.92	-
choking	2.88	-
witnessing/ experienced childhood abuse	5.10	-
escalation of violence	7.38*	.30
obsessive behaviour	1.78	-
unemployment	3.51	-
common-law	5.29	-
separation	0.03	-

access to firearms	2.04	-
actual or perceived new partner	2.22	-
failure to comply with authority	7.56*	.30
sexual jealousy	0.53	-
misogynistic attitudes	0.58	-
victim intuitive fear	1.48	-
threatening or harming children	4.48	-

Note. Refer to Tables 1 and 2 for sample size frequencies and percentages. *df* = 2.
*$p < .05$. **$p < .01$.

Service providers. Service provider contacts were also analyzed for the three mental health status groups and the service providers which had 25% or less of their cells with expected counts less than 5 were police, court judges, defense counsel, probation, criminal courts and health care providers. Furthermore, each of these service providers achieved statistically significant results with the chi-square test (see Table 4 for descriptive information and Table 9 for chi-square results). Post hoc analyses were executed using an alpha level of .008 with the Bonferroni Correction. For police, post hoc analyses revealed that the depression only group (p = .008) had 74% (n = 20) of cases not having had prior contact and the combined difficulties group ($p < .001$) had 79% (n = 22) of cases with prior contact. For court judges and defense, the depression only group had 96% (n = 26) of cases without prior contact (p = .001 and p = .003 respectively). For probation, the depression-only group (p = .001) had 78% (n = 21) of cases without prior contact and the combined difficulties group ($p < .001$) had 43% (n = 12) of cases with prior contact. Lastly, for health care providers, the no mental illness group (p = .006) had

93% (*n* = 27) of cases without prior contact. Criminal courts did not yield statistically significant results from the post hoc analysis.

Table 9

Chi-square Results for Service Providers in Secondary Analyses

Service Providers	χ^2	Cramer's V
police	17.30**	.45
court judges	10.41**	.35
defense counsel	8.91*	.32
probation	14.57**	.41
criminal courts	6.60*	.28
health care providers	8.11*	.32

Note. Refer to Table 4 for sample size frequencies and percentages. *df* = 2.
*$p < .05$. **$p < .01$.

Fisher's exact test.

Risk factors. Fisher's exact test was performed for 15 risk factors and hostage taking, destruction of property and minimization all achieved statistically significant results (see Table 10). Post hoc analyses, with a Bonferroni correction of .008, showed statistically significant results for hostage-taking and destruction of property. Perpetrators in the combined difficulties group had a higher likelihood of having had hostage-taking behaviour ($p = .005$) with 27% ($n = 7$) of cases involving this behaviour. Perpetrators in the combined difficulties group also had a higher likelihood ($p < .001$) of having destroyed the victims property with 37% ($n = 10$) of perpetrators having engaged in this behaviour.

Table 10

Fisher's Exact Test Results for Risk Factors in Secondary Analyses

Risk Factors	Test value	Cramer's V
history of domestic violence with past partners	1.67	-
assault with a weapon	3.51	-
prior suicide attempts	4.40	-
hostage-taking	9.33**	.34
sexual acts	0.65	-
child custody disputes	1.71	-
destruction of property	12.28**	.41
violence against pets	1.36	-
assault on victim while pregnant	2.25	-
presence of stepchildren	0.56	-
minimization or denial of assault history	7.16*	.31
witnessed/exposed to family suicide	1.77	-
after risk assessment had access to victim	0.92	-
youth	3.65	-
age disparity	0.51	-

Note. Refer to Table 3 for sample size frequencies and percentages.

*$p < .05$. **$p < .01$

Service providers. Service providers were also subjected to Fisher's exact test and corrections, mental health providers and substance abuse programs all obtained statistically

significant results (see Table 11). One service provider, crown attorneys, was approaching significance ($p = .06$) (see Table 11). Using post hoc analyses, only substance abuse programs achieved statistically significant results ($p < .001$) with perpetrators in the combined difficulties group having an increased likelihood of having had contact (30%; $n = 8$).

Table 11

Fisher's Exact Test Results for Service Providers in Secondary Analyses

Service Providers	Test value	Cramer's V
crown attorneys	5.84	-
corrections	6.70*	.27
parole	1.05	-
family court	0.58	-
family lawyer	0.40	-
school	1.81	-
child protection	1.12	-
mental health providers	7.92*	.31
mental health programs	1.95	-
local hospital	3.83	-
ambulance services	3.32	-
anger management programs	1.82	-
marriage counselling	0.48	-
substance abuse programs	15.44**	.47

religious contact	1.82	-
immigrant advocacy	1.22	-
animal control	1.87	-
cultural organization	1.95	-
fire department	2.11	-

Note. Refer to Table 4 for sample size frequencies and percentages.
*$p < .05$. **$p < .01$.

MANOVA.

Assumption testing. Assumption testing was performed in the secondary analysis to ensure that the MANOVA would produce valid results for the newly combined three levels of the independent variable. The transformed data for service providers was utilized again to reduce the effects of the univariate outliers still present in the dataset. As outlined above, no multicollinearity was detected and a linear relationship was present between the two dependant variables. Furthermore, with the transformed service provider contact data, multivariate and univariate outliers were absent in the dataset. Through Box's test of quality of covariance matrices, homogeneity of variances was met ($p = .22$), however Levene's Test of Homogeneity of Variance was violated for risk factors ($p < .05$). Despite MANOVA being rather robust to heterogeneity of variances when there are equal sample sizes among groups, a stricter alpha level of .01 was adopted for evaluating pairwise comparisons in risk factors. For post hoc analyses, Games-Howell post hoc tests were used to ensure that the analysis was more conservative (Allen & Bennett, 2007). Again, despite having transformed the service provider data, the no mental illness, depression and combined difficulties groups all failed to meet the assumption of a normal distribution as per Shapiro-Wilk ($p = .001$, $p = .01$ and $p = .02$ respectively). For risk factors the

no mental illness group also failed to meet the assumption of a normal distribution (p = .03). As noted above (see Table 6), the skewness and kurtosis z-scores suggested a normal distribution, including for the new combined difficulties group, so the MANOVA was still executed.

Outcome. The multivariate result for risk factors and service providers in mental health status groups was significant (F (6, 166) = 3.70, p = .007; Pillai's Trace = .16, partial η^2 = .82). The test of between-subjects effects was also significant for mental health status groups in both risk factors (F (2, 83) = 3.59, p = .032; partial η^2 = .08) and service providers (F (2, 83) = 6.03, p < .01, partial η^2= .13). Since the F ratio was significant for the between-subjects effect in risk factors and service providers, it indicated that at least one set of the means between the no mental illness, depression only, and combined difficulties groups were significantly different for both dependant variables. Games-Howells post hoc tests were performed for risk factors and Tukey post hoc tests were performed for service providers in order to deduce which means were significantly different. For risk factors there were no significant differences between groups (p > .01), however the comparison between the no mental illness group and the combined difficulties group was reaching significance (p = .03). Overall, means showed a trend of no mental illness < depression < combined difficulties in number of risk factors (see Table 12). There were significant differences (p < .05) found for service providers between the depression only and combined difficulties groups, as well as between the no mental illness group and the combined difficulties group. Means showed a trend of depression < no mental illness < combined difficulties in number of service provider contacts (see Table 12).

Table 12

Descriptive Statistics for Risk Factors and Service Providers in Secondary Analyses

Mental Health Status Groups	*n*	Risk Factors		Service Providers (not transformed)		Service Providers (log transformed)	
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
No Mental Illness	30	6.87	4.62	2.63	3.16	.40	.37
Depression Only	28	8.35	5.57	1.89	2.44	.35	.30
Combined Difficulties	28	10.89	6.94	4.25	3.12	.63	.29

Note. A log transformation was used on service provider data for the MANOVA.

Discussion

Victim mental health correlates of domestic homicide have been a topic of much research to-date; however researchers had yet to expand investigations to comorbid mental health conditions in perpetrators of domestic homicide. This study sought to elucidate whether differences exist between perpetrators of domestic homicide with comorbid depression and substance abuse, and perpetrators with only depression, only substance abuse or no mental illness. These differences were assessed within a data base of domestic homicide reviews conducted by a multi-disciplinary committee within the Office of the Chief Coroner of Ontario (Ministry of Community Safety and Correctional Services, 2018). The variables examined were common ones found in the literature on the prevention of domestic homicide and included risk factors, service provider contacts, criminal history, case type, substance use at the time of homicide, third party knowledge and family support (Abramsky et al., 2011; Campbell et al., 2003; Hilton & Eke, 2017; Kropp, 2008; Messing & Thaller, 2013; Websdale et al., 1999).

In the primary analysis, perpetrators were categorized into four groups based on their mental health status: no mental illness, depression only, substance abuse only and comorbid depression and substance abuse. Though many cases were excluded from the analyses due to insufficient information about the perpetrators' mental health statuses, the sample size achieved by each of these groups is important to discuss. Out of the 86 cases, the no mental illness group contained 30 perpetrators, or 35% of these cases, while the mental illness groups combined (i.e. depression only, substance abuse only and comorbid groups) contained 56 perpetrators, or 65% of the 86 cases. These sample sizes illustrate that a large number of male perpetrators of domestic homicide are suffering from mental illness. When also taking into account the number of cases excluded from the study due to the perpetrators suffering from other psychiatric illnesses (n = 53), at least 109 (i.e. 56 + 53) perpetrators, or 50% of perpetrators out of the total 219 cases reviewed in this study had at least one confirmed mental health concern. Furthermore, since cases were excluded from the current study due to insufficient information about mental health status, this 50% is considered a conservative estimate. In comparing this conservative result to the general population, where it has been estimated that one in five or 20% of people suffer from mental illness, it is apparent that mental illness is overrepresented in perpetrators of domestic homicide (Centre for Addiction and Mental Health, 2017).

An interesting finding from the current study was the presence of alcohol abuse in 96% of the substance abuse only and comorbid depression and substance abuse cases combined. This finding was not hypothesized; however it is in-line with research showing that alcohol is the most commonly used drug in Canada (Canadian Centre on Substance Use and Addiction, 2017). The perpetrators in our sample seem to be typical in their drug of choice, as alcohol is likely an affordable, convenient and legal option over other drugs within our Canadian context. However,

the types of substances that are abused by perpetrators of domestic homicide should be further investigated, as past research has suggested that professionals may only attend to one problem at a time and the abuse of different substances may not have been fully captured in our dataset of police reports and third party interviews (Riger, Bennett & Sigurvinsdottir, 2014).

Perpetrators with Comorbid Depression and Substance Abuse

In the primary analysis comparing the four mental health status groups, the number of risk factors and service provider contacts were not found to be significantly different from each other. This result was not anticipated, as it was hypothesized that there would be increased risk factors and service provider contacts for perpetrators with comorbid depression and substance abuse based on the complexity of their mental health concerns. Though the lack of significant findings may be due to small sample sizes, it may also illustrate a gap between the needs of perpetrators and the acquirement of help from service providers. In theory perpetrators with comorbid mental health concerns should have contact with more service providers so that they receive comprehensive care, however in practice the findings from the current study indicate that this may not occur. The reasons for this gap between perpetrator need and connection with services are speculative; however it does suggest that perpetrators, community members and service providers have some work to do in decreasing the barriers to help-seeking. Past research indicates that some barriers to perpetrators seeking help may include family and friends not providing help or providing ineffective help, traditional gender roles impeding help seeking, lack of trust in professionals providing help and perceived lack of professional knowledge about domestic violence (Campbell, Neil, Jaffe and Kelly, 2010). It is essential that potential barriers are addressed in future research so that they may be minimized and/or resolved so that perpetrators are able to successfully obtain help.

Furthermore, it should be highlighted that the presence of risk factors may predict whether perpetrators connect with service providers, and since perpetrators with comorbid depression and substance abuse were not found to have a significantly increased number of risks factors compared to the other mental health status groups, this may partially explain why no significant findings were found for service provider contacts. Though the number of risk factors and service provider contacts did not receive statistically significant results, both were approaching significance, with the comorbid depression and substance abuse group having the largest mean for both risk factors and service providers. A larger sample size is warranted in future studies investigating comorbid mental health conditions in perpetrators of domestic homicide, as this may cause results to become more pronounced.

Analyses also revealed that the comorbid depression and substance abuse group had a higher likelihood of having had a prior hostage taking and having had contact with substance abuse programs. Literature on hostage taking in domestic violence contexts is scarce, however Van Hasselt et al. (2005) used five case examples to elucidate risk factors involved in domestic violence hostage-taking cases. The authors found that substance abuse was a major risk factor for hostage-taking, however this finding is slightly contrary to our results which did not find a significant number of hostage taking cases in our substance abuse only group, but rather in our comorbid depression and substance abuse group (Van Hasselt et al., 2005). Hostage taking could be a specific act occurring from the interaction between the anger and irritability in depression, and a reduction in cognitive processing in substance abuse, which have both been cited in previous literature (Dutton & Karakanta, 2013; Heinz et al., 2011). However future research is warranted to examine this notion. The comorbid depression and substance abuse group having an increased likelihood of having had contact with substance abuse programs was an interesting

finding which may relate to the complex mental health needs of these perpetrators, as well as to the accessibility of these programs. Perpetrators with comorbid depression and substance abuse programs may be more likely to get assistance for their substance abuse issues than for their depressive symptoms. Moreover, this result may indicate that substance abuse issues are much easier to recognize, accept and address than depression. However future research should aim to extend the results of the current study.

Hypotheses involving the presence of historical domestic violence and increased police contact for perpetrators with comorbid depression and substance abuse were not supported by the results of this study. However, every perpetrator (n = 13) in the comorbid depression and substance abuse group had committed historical domestic violence in their relationships, which may have produced a significant result with a larger sample size. Since police contact was not found to be increased in the comorbid depression and substance abuse group, but was found to be increased in the substance abuse group, this may suggest that depressive symptoms have an attenuating effect on substance abuse-specific behaviours, like impulsivity, which tend to precede police contact. However, this notion is contrary to Swednsen and Merikangas (2000)'s finding that when depression and substance abuse co-occur they tend to amplify each other's symptomology. Nonetheless, the result does illustrate that perpetrators with comorbid depression and substance abuse have a similar likelihood of contact with police as perpetrators with depression only or no mental illness which stresses the need for police education on the heterogeneous nature of domestic violence.

In terms of criminal history and substance use at the time of the homicide, the comorbid depression and substance abuse group, along with the substance abuse only group, were more likely to have had criminal histories and also have been using substances at the time of the

homicide. These results were anticipated as criminal activity and substance use during a violent incident will likely be amplified when perpetrators are struggling with addiction.

No statistically significant results were found for the comorbid depression and substance abuse group in case type. Though individuals with comorbid depression and substance abuse have been found to have increased suicidality in psychiatric samples, perpetrators with comorbid depression and substance abuse in our sample did not show elevated suicidality (Dhossche et al., 2000; Sher et al., 2005). Cases classified as homicide-suicide in this study also included eight perpetrators who unsuccessfully attempted suicide, so reasons related to substance abuse fueling unsuccessful attempts at completing suicide do not explain this result. Instead, results suggest that substance abuse in combination with depression may induce more homicidal behaviours than suicidal. This result could also be specific to our type of sample, as previous studies have not examined comorbid depression and substance abuse in perpetrators of domestic homicide. Future research should aim to replicate this result.

In terms of third party knowledge and family support, results did not emerge as hypothesized for perpetrators with comorbid depression and substance abuse having more third party knowledge and family support. Instead, the results indicated that third parties are not necessarily more likely to know or be aware of domestic violence when perpetrators are struggling with comorbid depression and substance abuse. Furthermore, results suggested that family members are just as likely to support perpetrators who have complex mental health needs, as perpetrators without complex mental health needs. The results may also be indicative of the scarcity of information obtained for third party knowledge and family support, as these variables were unknown in a lot of cases which may have caused a non-significant result. However, future research is needed to replicate these results as well as investigate third party knowledge and

family support in cases where perpetrators are struggling with other comorbid mental health conditions.

Perpetrators with No Mental Illness

Though this study aimed to specifically examine hypotheses in relation to perpetrators with comorbid depression and substance abuse, significant results obtained for the other mental health status groups are also important to discuss. In the primary analysis, the no mental illness group had a decreased likelihood of having had threatened to die by suicide and decreased likelihood of having used substances at the time of the suicide which relate well to the absence of mental illness in this group. However, the decreased likelihood of having had contact with health care providers was an interesting finding. If this result is related to the absence of mental illness in the group, then it may suggest that mental health conditions are a main reason why perpetrators may connect with health care providers. This idea is logical as many family doctors in Canada act as a primary contact for individuals with mental health challenges. However, this result could also be representative of comorbidities that exist between mental and physical conditions. Groups with mental illness (like the depression only, substance abuse only and comorbid groups) may be more likely to have physical illnesses in addition to their mental health concerns which may make them more likely to seek out health care providers. Future research is needed to test this notion. Whatever the cause for this result, it does suggest that perpetrators without mental illness may not be connecting with health care providers as much as perpetrators with mental illness which emphasizes the need for health care providers to be aware of the mental health correlates of domestic violence and homicide.

Perpetrators with Depression Only

The depression only group had an increased likelihood of having had threatened to die by suicide and also had an increased likelihood of having been involved in a homicide-suicide case. Thus, the depression only group achieved results in-line with hypotheses related to increased suicidality and in-line with previous research reporting the association between depression and suicidal behaviours (Eliason, 2009). Results also showed that this group had a decreased likelihood of having had contact with judges, defense counsel and probation though no hypotheses specific to this group were made for contact with service providers. These results suggest that perpetrators with only depression will have less contact with the criminal justice system in general which makes intuitive sense given that they are not struggling with substance abuse which might amplify criminal behaviour. This result is important to emphasize since the criminal justice system, which plays a major role in preventing violence and homicide, will have a decreased likelihood of connecting with perpetrators who are struggling with depression. The onus may be on other service providers, such as health care and mental health providers, in addition to the perpetrators themselves, to procure assistance for this sub-group's violence and mental health concerns. The depression only group also had a decreased likelihood of having been using substances at the time of the homicide which is also consistent with the absence of addiction in this group.

Perpetrators with Substance Abuse Only

Results indicated that the substance abuse only group had a higher likelihood of having had a prior assault with a weapon which was not anticipated. However, this result is similar to the results of a Canadian study involving over 10,000 male offenders which found that over 53%

of their sample were abusing substances and were involved in crimes involving weapon use (Correctional Service Canada, 2011). Perpetrators with substance abuse would likely struggle with cognitive processing and self-control which may explain why this group had a higher likelihood of having assaulted their victim with a weapon (Heinz et al., 2011; Room et al., 2005).

Results also indicated that perpetrators in the substance abuse only group had an increased likelihood of being in a common-law relationship with the victim. This result was another surprising finding which may relate to the reduced conflict resolution skills, financial difficulties, and infidelity that can be present in relationships when one partner is abusing substances (Room et al., 2005; Shillington et al., 1995). The substance abuse only group also had an increased likelihood of having had prior contact with police, corrections and probation, and an increased likelihood of having had a criminal history which were in-line with hypotheses. These results are similar to findings from other studies which demonstrated increased criminal behaviour in individuals abusing substances (Public Safety Canada, 2015). Moreover, this result emphasizes the necessity of substance abuse and domestic violence training for police, corrections and probation officers so that these concerns can be appropriately assessed and managed. Finally, this group had an increased likelihood of having used substances at the time of the homicide which was anticipated due to the effects of chronic substance abuse.

Perpetrators with Combined Difficulties

In the secondary analysis, which combined the substance abuse only group and comorbid group into one “combined difficulties” group, perpetrators in the combined difficulties group comprised 33% of the overall sample. In comparing this to Sharps et al. (2001) findings that 56% of perpetrators in their sample were illicit drug users and 45% were abusing alcohol, in our

sample there were substantially less perpetrators abusing substances. This was an intriguing finding which may relate to the Canadian context. However, it is also possible that this result is due to study design as our result may have become comparable to Sharps et al. (2001) with the inclusion of a larger sample size. It may also suggest that data was incomplete or missing as not all perpetrators with substance abuse issues were included in our analyses. For instance, some perpetrators with substance abuse issues may have experienced other mental health conditions, like schizophrenia, which would have caused them to be excluded from this study.

Two other noteworthy results were obtained for the combined difficulties group which were not found in the primary analysis. The combined difficulties group had an increased number of service provider contacts compared to the other two groups and also had a higher likelihood of having destroyed victims' property in the past. These two results help to elucidate the role of substance abuse in perpetrators of domestic homicide. Firstly, perpetrators engaged in substance abuse will likely have contact with more service providers, such as those in the criminal justice system. This gives professionals increased chances to assess and manage risk with perpetrators who are abusing substances. This finding demonstrates the necessity of all professionals being well trained in dealing with both domestic violence and substance abuse issues. Secondly, perpetrators engaged in substance abuse may have reduced cognitive processing skills which cause them to act impulsivity and engage in behaviours like destroying an intimate partner's property (Heinz et al., 2011). Thus, service providers who learn that a perpetrator has destroyed an intimate partner's property should further assess for substance abuse concerns. Similarly, professionals who learn that a perpetrator is abusing substances should assist victims in protecting themselves and their property through comprehensive safety planning.

It is also important to consider where non-significant results were obtained in the secondary analysis. As was shown in the primary analysis, the secondary analysis result for number of risk factors was approaching significance which highlights the need for a larger sample size in future studies. Additionally, though the secondary analysis showed that the combined difficulties group had a higher likelihood of having had contact with substance abuse programs, the actual percentage of perpetrators having contact with these programs in this group was a low 30% (n = 8). In comparing this number to the amount of perpetrators in the combined difficulties group who had contact with police (74%; n = 22) it is apparent that there was a missed opportunity for police and the courts to direct perpetrators with substance abuse issues to programs that could assist them with their addiction. However, it should be noted that these results do not indicate whether the perpetrators had substance abuse issues at the time of police contact, or whether the police contact was due to substance abuse. Regardless, the results obtained in the secondary analysis suggest that improvement in service provider protocols may be needed when dealing with perpetrators of domestic homicide who are struggling with substance abuse.

Another salient result to consider is the lack of statistical significance achieved for mental health providers and programs. Though no hypotheses were made based on these providers, it is apparent that two of the groups, the depression only and combined difficulties groups, should have had increased contact with these providers due to their mental health statuses. Though it is possible that contact with these providers was underestimated, it still underscores the need for better access to mental health care for perpetrators of domestic violence and domestic homicide.

The Informal Social Control Model

The ability to categorize perpetrators into four and three groups based on mental health status reinforces the heterogeneous attributes of perpetrators of domestic violence. This categorization also lends support to the informal social control model which outlines how one factor, like mental illness, cannot fully explain an individuals' inclination to commit homicidal acts (Silver, 2006). The informal social control model relies on social connectedness moderating and preventing violence so the strength of perpetrators' social bonds was directly sought out in this study through investigating family support (Silver, 2006). The results illustrated that none of the four or three groups had more or less family support than another. Family support was shown to be rather high among all groups as each of the no mental illness, substance abuse only and comorbid groups contained more than 75% of cases with the perpetrators' family being present and involved in the perpetrators' lives, while the depression only group had 59% of cases with the perpetrators' family being present and involved. This finding may illustrate that social bonds from family members will not vary based on mental health status, but it may also indicate the importance of social bonds through other parties like friends and acquaintances. Furthermore, since the entire sample of perpetrators had committed homicide it does suggest that, from an informal social control perspective, each case would contain a weak amount of moderation from social bonds which were unable to prevent the homicidal act.

Implications

The implications of this study are numerous, including adding to both psychological and criminological fields for mental health, domestic violence and domestic homicide research. A

major implication entails informing service providers across disciplines about their role in connecting with perpetrators of domestic violence.

Mental health agencies. The perpetrators struggling with mental health concerns in our sample did not show increased contact with mental health providers or programs in their Ontario communities which indicates that barriers exist to perpetrators accessing mental health treatment. As indicated above, these barriers could include family members and friends not providing assistance, perpetrators having a lack of trust or not wanting to appear weak, or a lack of domestic violence training in agencies (Campbell et al., 2010). Though future research should aim to further identify these barriers, it is clear that mental health agencies need to make their services accessible to individuals who commit domestic violence. These agencies should ensure that they are equipped with enough training for their mental health workers to be comfortable and capable of working with perpetrators of domestic violence. Furthermore, mental health professionals should be able to recognize and address domestic violence when perpetrators present with mental health and/or relationship concerns. At present there are a few efforts focused on finding an effective way to address both substance abuse and domestic violence concerns, including cognitive behavioural and integrative treatment programs (Easton et al., 2007; Kraanen, Vedel, Scholing & Emmelkamp, 2013; Pickard & Fazel, 2013). With the success of these efforts, they should also be tailored to comorbid mental health conditions, like comorbid depression and substance abuse because this study demonstrates that they are also present in perpetrators of domestic homicide.

Perpetrators with comorbid depression and substance abuse in our sample were found to have increased contact with substance abuse programs which may suggest that depression tends to be overlooked by the perpetrators themselves, professionals referring perpetrators to these

programs and also by professionals coordinating these programs. Thus it is essential that perpetrators are engaged in a comprehensive assessment so that all issues can be identified and addressed. However, perpetrators with only substance abuse in our sample were not found to have increased contact with substance abuse programs so it is crucial that these programs also work to identify and address barriers to perpetrators seeking substance abuse treatment. A review article by Priester et al. (2016) identified personal and structural barriers to seeking substance treatment by individuals with comorbid mental health and substance use disorders. Personal barriers included low levels of functioning, cultural beliefs, low motivation and stigma (Priester et al., 2016). Structural barriers included a lack of specialized services, lack of sufficient staff training, long wait times and high cost of treatment (Priester et al., 2016). This review article highlights just some of the barriers that may need to be targeted by the community and by mental health professionals so that perpetrators of domestic violence with complex mental health concerns can access mental health services.

The results of this study make it clear that mental health professionals require domestic violence training. An initiative through the Oklahoma Domestic Violence Fatality Review Board has resulted in a specialized Mental Health and Domestic Violence committee that has brought awareness to the relationships between mental health, substance abuse and domestic violence (Oklahoma Domestic Violence Fatality Review Board, 2014). This initiative has also established domestic violence liaison positions within mental health and substance abuse agencies across the state (Oklahoma Domestic Violence Fatality Review Board, 2014). The development of committees such as this one internationally could assist in the unification of professionals from across sectors. Furthermore, purely through collaborative engagement it could help to educate

professionals on the assessment and management of co-occurring mental health and violence concerns.

Other service providers. Since the current study indicates that mental health agencies do not have increased contact with perpetrators who are struggling with mental health concerns, it is imperative that other service providers, like health, justice and social services, are able to recognize mental health concerns and subsequently refer perpetrators of domestic violence to mental health agencies. Therefore, increased training and education is warranted for service providers outside of mental health agencies on both simple and complex mental health presentations, and domestic violence. A police practice review completed by the Mental Health Commission of Canada (2010) revealed that mental health training was extremely variable across different policing units in Canada. This variability resulted in some police officers receiving extensive mental health training, and other officers receiving little to no mental health training. The current study indicates that all professionals working with perpetrators of domestic violence should receive extensive mental health training since a substantial amount of their clientele will be suffering from mental illness. Thus, organizations nationally should implement mandatory mental health training for their staff.

Perpetrators with no mental illness in our sample were found to have decreased contact with health care providers. This finding reinforces the need for health care professionals to have training in addressing and recognizing the interplay between domestic violence and mental health concerns since it is more likely that they will have contact with perpetrators who are suffering from mental health issues. Furthermore, it is essential that health care providers are able to connect perpetrators with mental health agencies and domestic violence-specific programs. Women's College Hospital has created an online resource for health care providers

which helps professionals make the connection between domestic violence, substance abuse and mental health concerns (Women's College Hospital, 2018). This resource is publically available and provides education on community resources within Ontario for domestic violence (Women's College Hospital, 2018). As this resource is focused on victims of domestic violence, an expansion of the resource is warranted for perpetrators so that health care providers are also confident in identifying, addressing and managing the abuser.

The criminal justice system is crucial in domestic violence contexts because they have the potential to protect victims from their abusive partners. However, our results indicated that perpetrators with depression only were having reduced contact with police which makes it essential that victims have adequate awareness of mental health and domestic violence so that they can seek help. Public education on domestic violence should include discussions of mental health so that members of the community, including victims of domestic violence, are aware of the relationship between them. One such education program is the Neighbours, Friends and Families campaign which is an initiative through the Centre for Research and Education on Violence Against Women and Children (CREVAWC) in London, Ontario and seeks to increase awareness of abusive men and at-risk women (CREVAWC, 2018). Their Workplace Champion program specifically aims to educate workers in the community so that organizations can be more vigilant in domestic violence situations (CREVAWC, 2018). Initiatives similar to this one can help communities recognize and address domestic violence when it is occurring in relationships, and further assists in the identification of the mental health correlates of violence.

Overall it is imperative that service providers work together so that issues and concerns in the realm of domestic violence can be effectively mitigated, especially in cases of severe violence. One way to eliminate barriers to help-seeking would be through the creation of a

comprehensive program which addresses the triad of violence, mental health and relationship issues. Recently a Domestic Violence Mental Health court has been implemented in Miami-Dade County, Florida which prescribes specialized risk management techniques to perpetrators of domestic violence who are suffering from mental health concerns (Winick, Wiener, Castro, Emmert, & Georges, 2010). This hybrid judicial model brings together frameworks for both domestic violence and mental health which enables perpetrators to receive the assistance that they need. Organizations that are able to adopt a similar model in their setting could make their services more accessible to perpetrators and also make it easier to for service providers to refer.

The current study can also help to inform risk assessment, risk management and safety planning strategies for both perpetrators and victims of domestic violence.

Risk assessment. In terms of risk assessment, tools like the ODARA and SARA could take into account complex mental health statuses in future revisions (Millar et al., 2013). The ODARA currently considers 13 items, one of which being perpetrator substance abuse (Hilton et al., 2004). However, the tool does not take into account other psychiatric diagnoses, like depression, or the presence of multiple mental health diagnoses. The SARA contains items related to substance abuse, psychotic symptoms and personality disorder (Millar et al., 2013). However, similar to the ODARA, it does not fully capture depression or comorbid conditions. Our results illustrate that upwards of 50% of perpetrators of domestic homicide may be experiencing mental illness. Thus it would prove useful if tools like the ODARA and SARA include explicit mental health items to fully assess the perpetrator's risk. Our results also illustrate that the presence of comorbid depression and substance abuse, plus the presence of hostage-taking behaviours may help to predict domestic homicide. Thus weighting items on tools

like the ODARA and SARA in such a way that accounts for the interaction between mental health concerns and risk factor presentation may also increase their predictive validity.

Risk management. With the increased predictive validity of risk assessment tools, risk management strategies are better able to decrease the risk of future violence or homicide. In terms of comorbid mental health statuses, like comorbid depression and substance abuse, identification in risk assessment tools can help inform risk management strategies, such as those aimed at service providers working with both violence and mental health concerns. For instance, with current risk assessment tools a perpetrator who is struggling with comorbid depression and substance abuse may only have their substance abuse identified. In this case the perpetrator would only have their substance abuse concerns dealt with through attending drug/ alcohol treatment or court-ordered abstinence. However, it is also essential for the perpetrator to have their depression managed, through individual psychotherapy, psychotropic medication or otherwise. Moreover it is essential that both of these treatments are included with treatment for violent behaviours, such as through a Partner Assault and Response (PAR) program. Without addressing every mental health concern in addition to the violence concerns a perpetrator will be at increased risk of committing domestic violence and/or homicide. Since numerous service providers may be involved when perpetrators are abusing substances it is essential that there is cohesive and clear communication between providers so that risk can be successfully managed.

Safety planning. Finally, agencies who are safety planning with victims could also consider complex mental health presentations. The results of this study indicate the need for safety planning strategies to consider how comorbid depression and substance abuse may increase the potential for certain behaviours to occur, like hostage-taking. Professionals can then work with victims to better prepare them for circumstances which may increase risk, such as

when a perpetrator with comorbid depression and substance abuse has access to drugs or alcohol. Additionally, professionals can provide education to victims on the presentation of complex mental health concerns so that they can be aware of the dangers. However, professionals should be wary of how they educate victims of domestic violence as a study by Noughani and Mohtashami (2011) indicates that the provision of an information booklet may not be sufficient in protecting female victims. Professionals within the criminal justice field could also attempt to limit victim contact with the perpetrator through court protection orders for further safety.

Limitations

Though the sample of DVDRC cases that were used in this study was a rich data source, there were limitations to its usage. Firstly, this study had a limited sample size due to the inclusion of only Ontario domestic homicide cases which reduced the power to detect effects. Also, again due to limited sample size, same-sex couples, female perpetrators and male victims were excluded from this study because of their under representation in the population. Future studies should aim to increase sample size, perhaps by using a larger geographical location, and should also investigate same-sex relationships and relationships with female perpetrators and male victims in an effort to expand knowledge on domestic homicide. Though our sample of Ontario domestic homicide cases may not generalize to other Canadian provinces, Ontario comprises 40% of the Canadian population which makes our sample extremely important in conveying an overall picture of Canadian domestic homicides.

In terms of statistical tests, despite MANOVAs robustness to violations of normal distribution, small sample size makes the statistical test less robust and is a limitation in producing valid results. Thus results of this study should be interpreted with caution.

Categorization of perpetrators into mental health status groups was also a limitation of this study, as it was based on information that was obtained after the homicides had occurred. Inaccurate categorizations may have occurred due to the inaccessibility of all possible case and background information. Furthermore, since the dataset mainly contained information pertaining to factors present at the time of the homicide, some perpetrators who experienced depression or substance abuse in their past may not have been placed in the correct category. For example, if a perpetrator suffered from substance abuse earlier in his life but did not struggle with it in the years leading up to the homicide then he may have been incorrectly placed in the "no mental illness" group. The dataset was more useful in detecting concurrent comorbid depression and substance abuse than successive comorbid depression and substance abuse.

Future Research

Since Sesar et al. (2015) concluded that research findings on perpetrator mental health are largely "insufficient", it is important that future research continues to examine the relationship between mental health and domestic violence and homicide perpetration. As stated previously, future research is also warranted utilizing larger sample sizes to elucidate whether perpetrators of domestic homicide with comorbid depression and substance abuse do have an increased number of risk factors and service provider contacts. Furthermore, research into perpetrators struggling with other comorbid mental health conditions would be valuable in distinguishing whether all comorbid conditions can lead to hostage taking and criminal behaviour.

Research on same-sex couples, male victims, female perpetrators and bi-directional violence between perpetrators and victims is also important to consider, and the impacts of complex mental health conditions on violence in these relationships. Finally, vulnerable groups,

such as immigrant and refugee populations, should also be examined in future research, as these groups may have different risk factors dependant on their mental health status and may also have a reduced likelihood of seeking contact with service providers.

Conclusion

In summary, findings illustrate that perpetrators of domestic homicide are a heterogeneous group made up of a large proportion of individuals who are struggling with mental health concerns, but also of individuals who do not have any mental health concerns. Due to the heterogeneity of this group, it is crucial to consider the complexities of multiple mental health conditions and how that may relate to risk factors and contact with service providers. Specifically, when comorbid depression and substance abuse is involved, perpetrators may have higher incidences of hostage-taking, criminal behaviour and connection with substance abuse programs in the community. In terms of one mental health concern, perpetrators struggling with depression may have increased suicidality and less contact with the criminal justice system. Furthermore, perpetrators who are only struggling with substance abuse may have prior assaults with weapons, criminal behaviour and may already be in contact with the criminal justice system. Overall, perpetrators who are struggling with complex mental health difficulties may have a higher likelihood of destroying victims' property and have contact with more service providers.

The findings of the current study demonstrate the need for service providers to have policies and protocols surrounding recognizing and addressing risk for domestic violence/homicide when risk factors are present along with mental health concerns. It is imperative that service providers work collaboratively so that perpetrator concerns are

effectively managed and victims are fully protected. However, future studies are warranted to determine whether other differences may exist in risk factors and service provider contacts for perpetrators with comorbid depression and substance abuse.

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Appendix A

Western University
Non-Medical Research Ethics Board
Study Approval Notice

Western Research

Research Ethics

Western University Non-Medical Research Ethics Board
NMREB Delegated Initial Approval Notice

Principal Investigator: Dr. Peter Jaffe
Department & Institution: Education\Faculty of Education,Western University

NMREB File Number: 109560
Study Title: Vulnerabilities in perpetrators and victims of domestic homicide

NMREB Initial Approval Date: September 20, 2017
NMREB Expiry Date: April 30, 2018

Documents Approved and/or Received for Information:

Document Name	Comments	Version Date
Revised Western University Protocol		2017/09/01
Other	Agreement With Coroner and Researcher-Received for Information	2017/09/01

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the above named study, as of the NMREB Initial Approval Date noted above.

NMREB approval for this study remains valid until the NMREB Expiry Date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario.

Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB.

The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

[redacted]

Ethics Officer, on behalf of Dr. Randal Graham, NMREB Chair or delegated board member

EO: Erika Basile __ Grace Kelly__ Katelyn Harris__ Nicola Morphet __ Karen Gopaul __ Patricia Sargeant _✓_ Kelly Patterson __

Appendix B

Domestic Violence Death Review Committee
Office of the Chief Coroner of Ontario
Risk Factor Coding Form

(see descriptors below)

A= Evidence suggests that the risk factor was not present
P= Evidence suggests that the risk factor was present
Unknown (Unk) = A lack of evidence suggests that a judgment cannot be made

Risk Factor	Code (P,A, Unk)
1) History of violence outside of the family by perpetrator/	
2) History of domestic violence- past partners	
3) History of domestic violence- current partner	
4) Prior threats to kill victim	
5) Prior threats with a weapon	
6) Prior assault with a weapon	
7) Prior threats to commit suicide by perpetrator	
8) Prior suicide attempts by perpetrator*(if check #6 and/or #7 only count as one factor)	
9) Prior attempts to isolate the victim	
10) Controlled most or all of victim's daily activities	
11) Prior hostage-taking and/or forcible confinement	
12) Prior forced sexual acts and/or assaults during sex	
13) Child custody or access disputes	
14) Prior destruction or deprivation of victim's property	
15) Prior violence against family pets	

16) Prior assault on victim while pregnant	
17) Choked victim in the past	
18) Perpetrator was abused and/or witnessed domestic violence as a child	
19) Escalation of violence	
20) Obsessive behaviour displayed by perpetrator	
21) Perpetrator unemployed	
22) Victim and perpetrator living common-law	
23) Presence of stepchildren in the home	
24) Extreme minimization and/or denial of spousal assault history	
25) Actual or pending separation	
26) Excessive alcohol and/or drug use by perpetrator	
27) Depression – in the opinion of family/friend/acquaintance - perpetrator*	
28) Depression – professionally diagnosed – perpetrator (If check #26 and/or #27 only count as one factor)	
29) Other mental health or psychiatric problems – perpetrator	
30) Access to or possession of any firearms	
31) New partner in victim's life	
32) Failure to comply with authority – perpetrator	
33) Perpetrator exposed to/witnessed suicidal behaviour in family of origin	
34) After risk assessment, perpetrator had access to victim	
35) Youth of couple	
36) Sexual jealousy – perpetrator	

37)	Misogynistic attitudes – perpetrator	
38)	Age disparity of couple	
39)	Victim's intuitive sense of fear of perpetrator	
40)	Perpetrator threatened and/or harmed children	

Appendix C

Domestic Violence Death Review Committee
Office of the Chief Coroner of Ontario
Risk Factor Descriptions

Perpetrator = The primary aggressor in the relationship
Victim = The primary target of the perpetrator's abusive/maltreating/violent actions

*see Appendix B to match numbers with the appropriate risk factor

1) Any actual or attempted assault on any person who is not, or has not been, in an intimate relationship with the perpetrator. This could include friends, acquaintances, or strangers. This incident did not have to necessarily result in charges or convictions and can be verified by any record (e.g., police reports; medical records) or witness (e.g., family members; friends; neighbours; co-workers; counsellors; medical personnel, etc.).

2) Any actual, attempted, or threatened abuse/maltreatment (physical; emotional; psychological; financial; sexual, etc.) toward a person who has been in an intimate relationship with the perpetrator. This incident did not have to necessarily result in charges or convictions and can be verified by any record (e.g., police reports; medical records) or witness (e.g., family members; friends; neighbours; coworkers; counsellors; medical personnel, etc.). It could be as simple as a neighbour hearing the perpetrator screaming at the victim or include a co-worker noticing bruises consistent with physical abuse on the victim while at work.

3) Any actual, attempted, or threatened abuse/maltreatment (physical; emotional; psychological; financial; sexual, etc.) toward a person who is in an intimate relationship with the perpetrator. This incident did not have to necessarily result in charges or convictions and can be verified by any record (e.g., police reports; medical records) or witness (e.g., family members; friends; neighbours; coworkers; counsellors; medical personnel, etc.). It could be as simple as a neighbour hearing the perpetrator screaming at the victim or include a co-worker noticing bruises consistent with physical abuse on the victim while at work.

4) Any comment made to the victim, or others, that was intended to instill fear for the safety of the victim's life. These comments could have been delivered verbally, in the form of a letter, or left on an answering machine. Threats can range in degree of explicitness from "I'm going to kill you" to "You're going to pay for what you did" or "If I can't have you, then nobody can" or "I'm going to get you."

5) Any incident in which the perpetrator threatened to use a weapon (e.g., gun; knife; etc.) or other object intended to be used as a weapon (e.g., bat, branch, garden tool, vehicle, etc.) for the purpose of instilling fear in the victim. This threat could have been explicit (e.g, "I'm going to shoot you" or "I'm going to run you over with my car") or implicit

(e.g., brandished a knife at the victim or commented "I bought a gun today"). Note: This item is separate from threats using body parts (e.g., raising a fist).

6) Any actual or attempted assault on the victim in which a weapon (e.g., gun; knife; etc.), or other object intended to be used as a weapon (e.g., bat, branch, garden tool, vehicle, etc.), was used. Note: This item is separate from violence inflicted using body parts (e.g., fists, feet, elbows, head, etc.).

7) Any recent (past 6 months) act or comment made by the perpetrator that was intended to convey the perpetrator's idea or intent of committing suicide, even if the act or comment was not taken seriously. These comments could have been made verbally, or delivered in letter format, or left on an answering machine. These comments can range from explicit (e.g., "If you ever leave me, then I'm going to kill myself" or "I can't live without you") to implicit ("The world would be better off without me"). Acts can include, for example, giving away prized possessions.

8) Any recent (past 6 months) suicidal behaviour (e.g., swallowing pills, holding a knife to one's throat, etc.), even if the behaviour was not taken seriously or did not require arrest, medical attention, or psychiatric committal. Behaviour can range in severity from superficially cutting the wrists to actually shooting or hanging oneself.

9) Any non-physical behaviour, whether successful or not, that was intended to keep the victim from associating with others. The perpetrator could have used various psychological tactics (e.g., guilt trips) to discourage the victim from associating with family, friends, or other acquaintances in the community (e.g., "if you leave, then don't even think about coming back" or "I never like it when your parents come over" or "I'm leaving if you invite your friends here").

10) Any actual or attempted behaviour on the part of the perpetrator, whether successful or not, intended to exert full power over the victim. For example, when the victim was allowed in public, the perpetrator made her account for where she was at all times and who she was with. Another example could include not allowing the victim to have control over any finances (e.g., giving her an allowance, not letting get a job, etc.).

11) Any actual or attempted behaviour, whether successful or not, in which the perpetrator physically attempted to limit the mobility of the victim. For example, any incidents of forcible confinement (e.g., locking the victim in a room) or not allowing the victim to use the telephone (e.g., unplugging the phone when the victim attempted to use it). Attempts to withhold access to transportation should also be included (e.g., taking or hiding car keys). The perpetrator may have used violence (e.g., grabbing; hitting; etc.) to gain compliance or may have been passive (e.g., stood in the way of an exit).

12) Any actual, attempted, or threatened behaviour, whether successful or not, used to engage the victim in sexual acts (of whatever kind) against the victim's will. Or any assault on the victim, of whatever kind (e.g., biting; scratching, punching, choking, etc.), during the course of any sexual act.

13) Any dispute in regards to the custody, contact, primary care or control of children, including formal legal proceedings or any third parties having knowledge of such arguments.

14) Any incident in which the perpetrator intended to damage any form of property that was owned, or partially owned, by the victim or formerly owned by the perpetrator. This could include slashing the tires of the car that the victim uses. It could also include breaking windows or throwing items at a place of residence. Please include any incident, regardless of charges being laid or those resulting in convictions.

15) Any action directed toward a pet of the victim, or a former pet of the perpetrator, with the intention of causing distress to the victim or instilling fear in the victim. This could range in severity from killing the victim's pet to abducting it or torturing it. Do not confuse this factor with correcting a pet for its undesirable behaviour.

16) Any actual or attempted form physical violence, ranging in severity from a push or slap to the face, to punching or kicking the victim in the stomach. The key difference with this item is that the victim was pregnant at the time of the assault and the perpetrator was aware of this fact.

17) Any attempt (separate from the incident leading to death) to strangle the victim. The perpetrator could have used various things to accomplish this task (e.g., hands, arms, rope, etc.). Note: Do not include attempts to smother the victim (e.g., suffocation with a pillow).

18) As a child/adolescent, the perpetrator was victimized and/or exposed to any actual, attempted, or threatened forms of family violence/abuse/maltreatment.

19) The abuse/maltreatment (physical; psychological; emotional; sexual; etc.) inflicted upon the victim by the perpetrator was increasing in frequency and/or severity. For example, this can be evidenced by more regular trips for medical attention or include an increase in complaints of abuse to/by family, friends, or other acquaintances.

20) Any actions or behaviours by the perpetrator that indicate an intense preoccupation with the victim. For example, stalking behaviours, such as following the victim, spying on the victim, making repeated phone calls to the victim, or excessive gift giving, etc.

21) Employed means having full-time or near full-time employment (including self-employment). Unemployed means experiencing frequent job changes or significant periods of lacking a source of income. Please consider government income assisted programs (e.g., O.D.S.P.; Worker's Compensation; E.I.; etc.) as unemployment.

22) The victim and perpetrator were cohabiting.

23) Any child(ren) that is(are) not biologically related to the perpetrator.

24) At some point the perpetrator was confronted, either by the victim, a family member, friend, or other acquaintance, and the perpetrator displayed an unwillingness to end assaultive behaviour or enter/comply with any form of treatment (e.g., batterer intervention programs). Or the perpetrator denied many or all past assaults, denied personal responsibility for the assaults (i.e., blamed the victim), or denied the serious consequences of the assault (e.g., she wasn't really hurt).

25) The partner wanted to end the relationship. Or the perpetrator was separated from the victim but wanted to renew the relationship. Or there was a sudden and/or recent separation. Or the victim had contacted a lawyer and was seeking a separation and/or divorce.

26) Within the past year, and regardless of whether or not the perpetrator received treatment, substance abuse that appeared to be characteristic of the perpetrator's dependence on, and/or addiction to, the substance. An increase in the pattern of use and/or change of character or behaviour that is directly related to the alcohol and/or drug use can indicate excessive use by the perpetrator. For example, people described the perpetrator as constantly drunk or claim that they never saw him without a beer in his hand. This dependence on a particular substance may have impaired the perpetrator's health or social functioning (e.g., overdose, job loss, arrest, etc). Please include comments by family, friend, and acquaintances that are indicative of annoyance or concern with a drinking or drug problem and any attempts to convince the perpetrator to terminate his substance use.

27) In the opinion of any family, friends, or acquaintances, and regardless of whether or not the perpetrator received treatment, the perpetrator displayed symptoms characteristic of depression.

28) A diagnosis of depression by any mental health professional (e.g., family doctor; psychiatrist; psychologist; nurse practitioner) with symptoms recognized by the DSM-IV, regardless of whether or not the perpetrator received treatment.

29) For example: psychosis; schizophrenia; bi-polar disorder; mania; obsessive-compulsive disorder, etc.

30) The perpetrator stored firearms in his place of residence, place of employment, or in some other nearby location (e.g., friend's place of residence, or shooting gallery). Please include the perpetrator's purchase of any firearm within the past year, regardless of the reason for purchase.

31) There was a new intimate partner in the victim's life or the perpetrator perceived there to be a new intimate partner in the victim's life

32) The perpetrator has violated any family, civil, or criminal court orders, conditional releases, community supervision orders, or "No Contact" orders, etc. This includes bail, probation, or restraining orders, and bonds, etc.

33) As a(n) child/adolescent, the perpetrator was exposed to and/or witnessed any actual, attempted or threatened forms of suicidal behaviour in his family of origin. Or somebody close to the perpetrator (e.g., caregiver) attempted or committed suicide.

34) After a formal (e.g., performed by a forensic mental health professional before the court) or informal (e.g., performed by a victim services worker in a shelter) risk assessment was completed, the perpetrator still had access to the victim.

35) Victim and perpetrator were between the ages of 15 and 24.

36) The perpetrator continuously accuses the victim of infidelity, repeatedly interrogates the victim, searches for evidence, tests the victim's fidelity, and sometimes stalks the victim.

37) Hating or having a strong prejudice against women. This attitude can be overtly expressed with hate statements, or can be more subtle with beliefs that women are only good for domestic work or that all women are "whores."

38) Women in an intimate relationship with a partner who is significantly older or younger. The disparity is usually nine or more years.

39) The victim is one that knows the perpetrator best and can accurately gauge his level of risk. If the women discloses to anyone her fear of the perpetrator harming herself or her children, for example statements such as, "I fear for my life", "I think he will hurt me", "I need to protect my children", this is a definite indication of serious risk.

40) Any actual, attempted, or threatened abuse/maltreatment (physical; emotional; psychological; financial; sexual; etc.) towards children in the family. This incident did not have to necessarily result in charges or convictions and can be verified by any record (e.g., police reports; medical records) or witness (e.g., family; friends; neighbours; co-workers; counselors; medical personnel, etc).

Appendix D

Domestic Violence Death Review Committee
Office of the Chief Coroner of Ontario
Data Summary Form

OCC Case #(s): _____ OCC Region: Central
OCC Staff: _____

Lead Investigating Police Service provider:
Officer(s):
Other Investigating Agencies: _
Officers: __

VICTIM INFORMATION

***If more than one victim, this information is for primary victim (i.e. intimate partner)*

Name

Gender	
Age	
Marital status	
Number of children	
Pregnant	
If yes, age of fetus (in weeks)	
Residency status	
Education	
Employment status	
Occupational level	
Criminal history	
If yes, check those that apply…	____ Prior domestic violence arrest record ____ Arrest for a restraining order violation ____ Arrest for violation of probation ____ Prior arrest record for other assault/harassment/menacing/disturbance ____ Prior arrest record for DUI/possession ____ Juvenile record

____ Total # of arrests for domestic violence offenses ____ Total # of arrests for other violent offenses ____ Total # of arrests for non-violent offenses ____ Total # of restraining order violations ____ Total # of bail condition violations ____ Total # of probation violations
Family court history
If yes, check those that apply… ____ Current child custody/access dispute ____ Prior child custody/access dispute ____ Current child protection hearing ____ Prior child protection hearing ____ No info
Treatment history
If yes, check those that apply… ____ Prior domestic violence treatment ___ Prior substance abuse treatment ____ Prior mental health treatment ____ Anger management ____ Other – specify _____ ____ No info
Victim taking medication at time of incident
Medication prescribed for victim at time of incident
Victim taking psychiatric drugs at time of incident

Victim made threats or attempted suicide prior to incident	
Any significant life changes occurred prior to fatality?	
Describe:	
Subject in childhood or Adolescence to sexual abuse?	
Subject in childhood or adolescence to physical abuse?	
Exposed in childhood or adolescence to domestic violence?	

-- END VICTIM INFORMATION --

PERPETRATOR INFORMATION

***Same data as above for victim*

Gender	
Age	
Marital status	
Number of children	
Pregnant	
If yes, age of fetus (in weeks)	
Residency status	
Education	
Employment status	
Occupational level	
Criminal history	

If yes, check those that apply… ____ Prior domestic violence arrest record ____ Arrest for a restraining order violation ____ Arrest for violation of probation ____ Prior arrest record for other assault/harassment/menacing/disturbance ____ Prior arrest record for DUI/possession ____ Juvenile record
____ Total # of arrests for domestic violence offenses ____Total # of arrests for other violent offenses ____ Total # of arrests for non-violent offenses ____ Total # of restraining order violations ____ Total # of bail condition violations ____ Total # of probation violations
Family court history
If yes, check those that apply… ____ Current child custody/access dispute ____ Prior child custody/access dispute ____ Current child protection hearing ____ Prior child protection hearing ____ No info
Treatment history
If yes, check those that apply… ____ Prior domestic violence treatment ___ Prior substance abuse treatment ____ Prior mental health treatment ____ Anger management ____ Other – specify _____ ____ No info

Perpetrator on medication at time of incident	
Medication prescribed for perpetrator at time of incident	
Perpetrator taking psychiatric drugs at time of incident	
Perpetrator made threats or attempted suicide prior to incident	
Any significant life changes occurred prior to fatality?	
Describe:	
Subject in childhood or Adolescence to sexual abuse?	
Subject in childhood or adolescence to physical abuse?	
Exposed in childhood or adolescence to domestic violence?	

-- END PERPETRATOR INFORMATION --

INCIDENT

Date of incident	
Date call received	
Time call received	
Incident type	
Incident reported by	
Total number of victims ***Not including perpetrator if suicided*	

Who were additional victims aside from perpetrator?	
Others received non-fatal injuries	
Perpetrator injured during incident?	
Who injured perpetrator?	

Location of crime

Location of incident	
If residence, type of dwelling	
If residence, where was victim found?	

Cause of Death (Primary Victim)

Cause of death	
Multiple methods used?	
If yes be specific …	
Other evidence of excessive violence?	
Evidence of mutilation?	
Victim sexually assaulted?	
If yes, describe (Sexual assault, sexual mutilation, both)	
Condition of body	
Victim substance use at time of crime?	
Perpetrator substance use at time of crime?	

Weapon Use

Weapon use	
If weapon used, type	
If gun, who owned it?	
Gun acquired legally?	
If yes, when acquired?	
Previous requests for gun to be surrendered/destroyed?	
Did court ever order gun to be surrendered/destroyed?	

Witness Information

Others present at scene of fatality (i.e. witnesses)?	
If children were present:	
Matthew Jr.	
Michelle	
Andrea	
What intervention occurred as a result?	

Perpetrator actions after fatality

Did perpetrator attempt/commit suicide following the incident?	
If committed suicide, how?	
Did suicide appear to be part of original homicide?	

How long after the killing did suicide occur?	
Was perpetrator in custody when attempted or committed suicide?	
Was a suicide note left? *If yes, was precipitating factor identified*	
Describe: *Perpetrator left note attached to envelope and within the envelope were photos of the victim and her boyfriend and correspondence regarding the purchase of a house in North Dakota and money transfers etc.*	
If perpetrator did not commit suicide, did s/he leave scene?	
If perpetrator did not commit suicide, where was s/he arrested/apprehended?	*(At scene, turned self in, apprehended later, still at large, other – specify)*
How much time passed between the fatality and the arrest of the suspect:	*(Hours, days, weeks, months, unknown, n/a – still at large)*

-- END INCIDENT INFORMATION --

VICTIM/PERPETRATOR RELATIONSHIP HISTORY

Relationship of victim to perpetrator	
Length of relationship	
If divorced, how long?	
If separated, how long?	
If separated more than a Month, list # of months	

Did victim begin relationship with a new partner?	

If not separated, was there evidence that a separation was imminent?	
Is there a history of separation in relationship?	
If yes, how many previous separations were there?	*(Indicate #, unknown*
If not separated, had victim tried to leave relationship	
If yes, what steps had victim taken in past year to leave relationship? (Check all that apply)	____ Moved out of residence ____ Initiated defendant moving out ____ Sought safe housing ____ Initiated legal action ____ Other – specify

Children Information

Did victim/perpetrator have children in common?	
If yes, how many children in common?	
If separated, who had legal custody of children?	
If separated, who had physical custody of children at time of incident?	
Which of the following best describes custody agreement?	
Did victim have children from previous relationship?	
If yes, how many?	*(Indicate #)*

History of domestic violence

Were there prior reports of domestic violence in this relationship?

Type of Violence? *(Physical, other)* _____
If other describe: _____
_____
_____

If yes, reports were made to: (Check all those that apply)
____ Police
____ Courts
____ Medical
____ Family members
____ Clergy
____ Friends
____ Co-workers
____ Neighbors
____ Shelter/other domestic violence program
____ Family court (during divorce, custody, restraining order proceedings)
____ Social services
____ Child protection
____ Legal counsel/legal services
____ Other – specify _____

Historically, was the victim usually the perpetrator of abuse? _____
If yes, how known? _____
Describe: _____
_____
_____

Was there evidence of escalating violence?
If yes, check all that apply:
____ Prior attempts or threats of suicide by perpetrator
____ Prior threats with weapon
____ Prior threats to kill
____ Perpetrator abused the victim in public
____ Perpetrator monitored victim's whereabouts
____ Blamed victim for abuse
____ Destroyed victim's property and/or pets
____ Prior medical treatment for domestic violence related injuries reported
____ Other – specify _____

-- END VICTIM-PERPETRATOR RELATIONSHIP INFORMATION --

SYSTEM CONTACTS

Background

Did victim have access to working telephone? _____

Estimate distance victim had to travel to access helping resources? (KMs)
_____

Did the victim have access to transportation? _____

Did the victim have a Safety Plan? _____

Did the victim have an opportunity to act on the Plan? _____

Agencies/Institutions
Were any of the following agencies involved with the victim or the perpetrator during the past year prior to the fatality? _____

***Indicate who had contact, describe contact and outcome. Locate date(s) of contact on events calendar for year prior to killing (12-month calendar)*

Criminal Justice/Legal Assistance:

Police (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Crown attorney (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Defense counsel (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Court/Judges (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Corrections (Victim, perpetrator or both)
Describe:_____
_____
Outcome:_____

Probation (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Parole (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Family court (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Family lawyer (Victim, perpetrator, or both)
Describe_____
_____
Outcome:_____

Court-based legal advocacy (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Victim-witness assistance program (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Victim Services (including domestic violence services)

Domestic violence shelter/safe house (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Sexual assault program (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Other domestic violence victim services (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Community based legal advocacy (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Children services

School (Victim, perpetrator, children or all)
Describe: (Did school know of DV? Did school provide counseling?)
_____
_____
Outcome:_____

Supervised visitation/drop off center (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Child protection services (Victim, perpetrator, children, or all)
Describe:_____
_____
Outcome:_____

Health care services

Mental health provider (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Mental health program (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Health care provider (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Regional trauma center (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Local hospital (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Ambulance services (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Other Community Services

Anger management program (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Batterer's intervention program (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Marriage counselling (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Substance abuse program (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Religious community (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Immigrant advocacy program (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Animal control/humane society (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Cultural organization (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Fire department (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

Homeless shelter (Victim, perpetrator, or both)
Describe:_____
_____
Outcome:_____

-- END SYSTEM CONTACT INFORMATION --

RISK ASSESSMENT

Was a risk assessment done?
*If yes, by whom?*_____

When was the risk assessment done?_____

What was the outcome of the risk assessment?_____

DVDRC COMMITTEE RECOMMENDATIONS

Was the homicide (suicide) preventable in retrospect? (Yes, no)

If yes, what would have prevented this tragedy?
_____
_____
_____
_____
_____
_____
_____

_____
_____
_____

What issues are raised by this tragedy that should be outlined in the DVDRC annual report?

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Future Research Issues/Questions:

_____
_____
_____
_____
_____
_____
_____

Additional comments:

_____
_____
_____
_____
_____
_____

Appendix E

Curriculum Vitae

Name: Casey Oliver

Post-Secondary Education:

Master of Arts, Counselling Psychology 2016 - 2018
Western University
London, Ontario, Canada

Bachelor of Science, Joint Major with Psychology 2010 - 2014
University of Waterloo
Waterloo, Ontario, Canada

Related Work Experience:

Counselling Internship 2017 - 2018
Psychological Services, Student Development Centre
Western University
London, Ontario, Canada

Group Facilitator 2017
Go Girls!
Big Brothers Big Sisters
London, Ontario, Canada

Graduate Student Assistantship 2017 - 2018
CREVAWC
Western University
London, Ontario, Canada