

Subjective distress among homicidally bereaved siblings as measured by the Impact of  
Event Scale (IES-R): Are event and loss related distress distinguishable among siblings  
bereaved by homicide?

By

Stephanie S. Slater

B.Sc. (Hons), The University of Victoria, 2012

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of

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## Abstract

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Trauma and grief often co-occur, however the degree to which these two constructs overlap or are distinguishable is still poorly understood. Homicidally bereaved individuals are exposed to both trauma and loss-related stressors. Previously collected data were used to explore the relationship between trauma and grief components in homicide bereavement distress, and whether homicide bereavement distress was distinguishable from that of other adverse life events. The overarching research question for this study was: Are event and loss related distress distinguishable among siblings bereaved by homicide,<sup>1</sup> as measured on the Impact of Event Scale-Revised (IES-R)? Data from 67 individuals who lost a sibling to murder while growing up (Murder Group) were compared to data from 80 comparison individuals who grew up with a sibling (Comparison Group), but who had no experience of homicide bereavement. A cross-sectional, iterative survey design using group comparisons was used. Participants in the Murder Group reported significantly higher levels of current subjective distress compared with the Comparison Group. Among the siblings bereaved by the homicide loss of a sibling, event- and loss-related subjective distresses were highly and significantly correlated. In addition, both decreased significantly over time (years), and at similar rates. Preliminary findings from exploratory analyses of the IES-R provide insight into the avoidance, intrusion, and hyperarousal components of subjective distress following homicide loss. Findings will inform understanding of the overlap, and distinguishing features, of concurrent trauma and grief. Implications for theory and empirical research are noted, and recommendations for future research and counselling practice are discussed.

<sup>1</sup> By definition, homicide includes first-degree murder, second-degree murder, (nonnegligent) manslaughter, and infanticide. Murder is defined by the Canadian Criminal Code as the deliberate killing of a person (Government of Canada, 2015a), and by the United States Federal Bureau of Investigation (FBI) as the “willful killing of one human being by another” (FBI, 2013). The terms homicide and murder are used interchangeably in this document. For the purposes of this thesis, homicide refers strictly to culpable homicide. Culpable homicide is murder (Government of Canada, 2015b).

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## Chapter 1

### Introduction and Literature Review

Trauma and grief have long been discussed in the psychological research literature (e.g., Charcot, 1878; Freud, 1917), and both have proven to be burgeoning areas of research. The past century saw a rapid proliferation of trauma and grief literature and both areas have established separate domains with specific theories and practices. *Traumatology*—the study of trauma, and *Thanatology*—the study of death, dying, mourning, and bereavement, are both well-developed areas of study and, up until recently, remained isolated from one another. The segregation of trauma and grief in theory and practice has left clinicians ill-equipped to support persons experiencing concurrent trauma and grief (Rando, 2015). This is unfortunate because the two forms of distress often co-occur (Neria & Litz, 2004). Information about how to understand, support, and treat individuals experiencing concurrent trauma and grief is sorely lacking (Rando, 2015).

The interplay between concurrent trauma and grief symptoms is thought to intensify and prolong distress through a synergy, or “synergistic effect” (Armour, 2006; Neria & Litz, 2004; Rynearson & McCreery, 1993). Synergy comes from the Greek *synergos* meaning ‘to work together,’ and, in this context, refers to the interaction between trauma and grief producing a combined distress greater than the sum of each individual effect. A synergistic effect is thought to be responsible for the elevated levels of grief observed among those bereaved by traumatic means (Malinga-Musamba & Maundeni, 2015; Neria & Litz, 2004; Rynearson & McCreery, 1993), including those bereaved by homicide. Despite being a widely accepted theory, and, perhaps for reasons of the afore mentioned historical divide between the two fields, there has yet to be a systematic study of the synergistic effect of trauma and grief.

In 1997, Simpson wrote that it is negligent to ignore the trauma component of grief or the grief component of trauma. Thankfully, researchers and clinicians responded to Simpson's warning, and have been working towards bridging the gap between trauma and grief. Investigations of the intersections between trauma and grief have been emerging in the recent past (e.g., Green, 2000; Kaltman & Bonanno, 2003). Reflecting on the current research, Rando (2015) noted her belief that we are presently in a "conceptual integration period" as researchers and clinicians are finally examining concurrent trauma and grief responses. Despite this welcome shift towards integration, more research is still needed if we are to understand the synergy between trauma and grief.

A better understanding of the synergy between trauma and grief in traumatic bereavement will also guard against the potential to misdiagnose what may be normal responses to traumatic loss as pathology. This is important because psychological professionals and researchers are in a position to "interpret mysteries which affect the lives of those who do not understand" (Sennet & Cobb, 1972, p. 227). In other words, the manner in which researchers choose to research and write about trauma and grief responses will trickle down and directly impact the lives of these vulnerable individuals. Tony Walter (2005) argued, for example, that all grief is complicated and whether or not we choose to normalize or pathologize grief is a social construction. Societal response will reflect messages from professionals deemed as experts and, therefore, it is important to consider the impact of pathologizing or, at least, rushing to pathologize trauma and grief. A quote from a participant in the current study, who was 16 years old at the time of her sibling's murder, tellingly captures both the "rush to pathologize" and the misguided social responses after the murder of her sister, in the following words:

i had friend's parents telling me within a few weeks that i needed to move on and its not healthy to dwell on anything. . . i had a psychiatrist tell me i was mentally ill because i was still grieving after 3 months and this was not "standard", my boyfriend at the time moved on immediately as he noticed my mental health slipping . . . my best friend's mother banned her from hanging out with me because clearly my parents didn't know how to take care of their children and deemed their supervision insufficient, oblivious and generally poor. Overall, every bit of sadness or dysfunction that ensued was pathologized as some sort of disease, illness, non-normal, when my very definition of normal had changed . . . i was met with judgement NOT help. (Participant PV8S3)

The purpose of my thesis was to explore the overlap between trauma and grief in traumatic grief. To do this, I used data collected from a sample of siblings who have experienced homicide bereavement. By virtue of losing a sibling to a violent, sudden, and intentional death, the participants in this sample have been exposed to high levels of both trauma and grief (Armour, 2006; Dickens, 2014; Neimeyer & Burke, 2011). More specifically, to explore the overlap and possible synergy between trauma and grief, I examined participants' subjective distress responses to the homicidal loss of a sibling, as indexed by self-report on the Impact of Events Scale-Revised (IES-R; Weiss, 2007). The IES-R has been widely used as a measure of Post Traumatic Stress Symptomology (PTSS) (Creamer, Bell & Failla, 2003; Hyer & Brown, 2008). It has been used to assess subjective response to potentially traumatic events in more than 1,147 published studies (Weiss, 2007), and it is perhaps the most widely used measure of trauma distress (Hyer & Brown, 2008). Despite the fact that the IES and its subsequent revisions do mirror the Diagnostic and Statistical Manual of Mental Disorders (DSM) criteria for Post Traumatic Stress Disorder (PTSD), the IES-R was not intended for use as a clinical

diagnostic tool (Hyer & Brown, 2008). Rather, the IES-R should be considered a measure of *general distress* [emphasis added] as opposed to a measure of PTSD (Weiss, 2007). The overarching research question for this study was: Are event and loss related distress distinguishable among siblings bereaved by homicide, as measured on the IES-R?

### **Review of the Literature**

In this literature review I discuss the history of the constructs of trauma and grief, and situate both in terms of present day theory and clinical implications. I end this section by briefly noting the phenomenological overlap of trauma and grief with respect to their cognitive, affective, behavioural, and physiological features. I then describe the evolution of current understanding of traumatic bereavement. I also discuss the origins and pertinent aspects of the IES-R (Weiss, 2007). I close with a discussion of homicide bereavement among siblings of homicide victims.

#### **Trauma, Grief, and Traumatic Bereavement: A Brief History and Overview**

The constructs of trauma and grief, as we know them today, emerged in the psychological research literature about a century ago. In this next section I discuss each of trauma, grief, and traumatic bereavement separately, and the duality, or co-existence, of trauma and grief in traumatic bereavement.

**Trauma.** *Traumatology*, the study of trauma, is thought to have emerged as early as 1900 B.C.E. in ancient Egyptian physician reports of hysterical patients in *Kumyus Papyrus* (Figley, 1993). Perhaps the first formal description of a pathological reaction to a life-threatening event occurred after the Franco-Prussian War (1870–1871), when Charcot (1878) described the impacts of events on an individual's psychological wellbeing. However, it was not

until 1980 that a formal diagnosis of trauma-related distress entered the diagnostic lexicon (APA, 1980).

After treating Franco-Prussian War veterans, Jean-Martin Charcot (1825–1893), a neurologist, used the term *névrose traumatique* (traumatic neurosis in English) to describe a cluster of symptoms—heart palpitations, exhaustion, somatic complaints, and sleep disturbance—which he had observed in a subset of veterans (Micale, 2001). Various terms were used to describe the trauma reactions after Charcot’s initial description, including *War Neuroasthenia*, *Shell Shock*, and *Gross Stress Reaction* (see DiMauro, Carter, Folk, & Kashdan, 2014 for review). It was not until 1974 that Mardi J. Horowitz would provide the first description of the criteria and symptoms of PTSD. Horowitz is a unique figure because he has made equally profound contributions to both the trauma and grief fields—even in his early work in 1974, Horowitz pointed to the similarities between trauma and grief patients (Maercker & Znoj, 2010). With regards to grief, Horowitz contributed greatly to this field when he and his colleagues coined the term *complicated grief* (Horowitz et al., 1997). With regards to trauma, not only was he the first to describe the criteria and symptoms of PTSD in 1974, which would later be incorporated into the DSM-III (APA, 1980), but he also published the Impact of Event Scale (IES) in collaboration with Wilner and Alvarez in 1979. Recall, the IES, and its subsequent revised version the IES-R (Weiss, 2007), is a measure of subjective distress, which has been widely used as a measure of trauma distress (Creamer, Bell & Failla, 2003; Hyer & Brown, 2008; Weiss, 2007).

As noted earlier, PTSD was added to diagnostic parlance with the publication of the DSM-III in 1980 (APA, 1980). Since then, PTSD has received a significant amount of clinical and research attention, including criticism (see McHugh & Treisman, 2007 for review).

McHugh and Treisman's 2007 critical review of PTSD argues that PTSD "replaced established views on mental responses to trauma to the detriment of patient care and psychiatric investigation". Interestingly, these authors compare acute trauma responses to uncomplicated grief responses, arguing that acute trauma responses generally resolve gradually overtime without the need for treatment, similar to uncomplicated grief. The authors also highlight previous research indicating that the most common response to trauma is resilience (Bonanno, 2005).

**Grief.** *Thanatology*, the study of death, dying, mourning, and bereavement, has roots in 10,000-year-old Sumerian myths about grief stricken men wandering into the wilderness (Pine, 1986). Bereavement is the period after a loss during which grief is experienced and mourning occurs. Bereavement has been described as an experience of brokenness or sorrow that can be psychological, emotional, social, physical, soulful, and spiritual (Attig, 2015, p.11). The psychological impact of loss on an individual has long been recognized (e.g., Freud, 1917). In 1917, Sigmund Freud wrote *Mourning and Melancholia*, a brief paper comparing grief and depression. In it, he noted commonalties and important distinctions between grief and depression, distinguishing grief from a disorder even though it may appear as such:

Although mourning involves grave departures from the normal attitude toward life, it never occurs to us to regard it as a pathological condition and to refer it to a medical treatment. We rely on its being overcome after a certain lapse of time, and we look upon any interference with it as useless or even harmful. (1917, p. 243)

Up until recently, grief responses were not considered pathological. Rather, grief responses were seen as unique, temporary, and normal reactions to a loss. However, this has changed in the more recent past as some grief researchers and clinicians have become convinced

that pathological grief exists. Like trauma, grief disorders have now entered the diagnostic lexicon. Prolonged Grief Disorder (PGD) and Persistent Complicated Bereavement Disorder (PCBD) are on track to becoming diagnosable mental disorders. PGD is proposed for inclusion in the 11<sup>th</sup> edition of the International Classification for Disease (ICD) set to be released in 2018 (Maercker, et al., 2013), and PCBD was included in the appendix section of the fifth edition of the DSM in 2013 (APA, 2013).

As noted earlier, there are considerable intersections between trauma and grief. These intersections operate across multiple levels, which I briefly describe next.

***Cognitive, affective, behavioral, and physiological components of trauma and grief.***

Cognitive components of trauma include intrusive thoughts, disbelief, preoccupation with thoughts of the traumatic event, and rumination (Eisma et al., 2015; Nam, 2016; Nolen-Hoeksema, 2001). Bereaved individuals may also experience the cognitive components of trauma listed above (Worden, 2009, p.24). In addition, they may report sensing their deceased loved one, which is conceptualized by Worden (2009, p. 25) as a cognitive manifestation of yearning. Affective characteristics of trauma include a disruption to the ability to regulate emotions, and the experiences of low mood, emotional numbing, irritability, and anger (Ehlers & Clark, 2000). In addition to the above, bereaved individuals may also experience emotional loneliness and yearning (van der Houwen et al., 2010). Behaviorally, examples of behaviors common to trauma distress are avoidance of reminders, crying, sighing, substance use in some cases, social withdrawal, and positive or negative religious coping (Ehlers & Clark, 2000; Neimeyer & Burke, 2011). Bereaved individuals may exhibit the behaviors common to trauma listed above, but they may either avoid or seek out reminders of their deceased loved one and they may treasure objects that remind them of the deceased (Eisma et al., 2015; Worden, 2009,

pp. 26-30). A hallmark physiological component of trauma distress is hyperarousal, which is a heightened sensitivity to threat and can include feeling ‘on edge’, sweating, pounding heart, an exaggerated startle response, and difficulty sleeping (DSM V, 2014, p. 275; Weiss, 2007). Like trauma, grief has physiological manifestations, including increased heart rate (Buckley et al., 2012) and high blood pressure (Buckley et al., 2011), which are both indicators of hyperarousal. Clearly, the cognitive, affective, behavioural, and physiological characteristics of trauma and grief distress share a considerable overlap (Mccoyd, Walter, & Levers, cited in Levers, 2012, pp. 77-98).

**Traumatic bereavement.** Around the same time (1917) that Freud wrote *Mourning and Melancholia*, Harold Wiltshire published a paper contributing to the developing etiology of *shell shock*, summarizing observations from over 100 cases. Most particularly though, Wiltshire highlighted the role of grief and loss in the development of shell shock when he wrote, “horrible sights are the most frequent and potent factor in the production of this shock. Losses and the fright of being buried are also important in this respect” (1916, p. 1212). The connection between trauma and grief is therefore highlighted in this early description of trauma as Wiltshire notes that the trauma response is also a response to the *losses* suffered. An important spark for studies in traumatic bereavement was a ground-breaking paper in 1944 by Erich Lindemann, written almost three decades after Freud’s (1917) *Mourning and Melancholia*. Lindemann’s paper detailed the responses of survivors and close relatives of those killed in the ‘Coconut Grove Fire’ in Boston, which killed 492 people. To this day, the Coconut Grove fire is the deadliest nightclub fire in history. Hundreds of people were trapped inside the building and were burned alive or died of smoke inhalation. Lindemann’s was the first scientific paper to describe abnormal grief reactions in bereavement. Notably, Lindemann coined the terms *morbid grief*

and *delayed grief*. He used the terms ‘morbid grief’ to describe a variety of maladjustment symptoms (self-harm, sleep difficulty, extreme anger), and ‘delayed grief’ to describe mourners who did not show any signs of grief until much later. Given the horrific circumstances of the fire, it is possible that Lindemann’s participants were experiencing posttraumatic stress symptoms and his account of their “morbid” grief reactions may have been an attempt to describe *traumatic bereavement*. It is impossible to know because at that time Lindemann was investigating “normal grief” (Lindemann, 1944), not trauma. However, it is likely more than just coincidence that the first description of abnormal grief came from Lindemann’s observations of research participants who had either survived the fire, or who had experienced the sudden and traumatic loss of a loved one to an unnatural cause of death. The dual phenomena of trauma and grief were implicit in Lindemann’s sample, thus highlighting the possible connections between trauma and grief in what we think of today as traumatic bereavement. Lindemann’s paper is also an early example of pathologizing or labelling the grief responses of individuals exposed to a horrific and traumatic event as “abnormal”, a pattern that persists today.

Around the same time that Simpson (1997) wrote that it is negligent to ignore either the trauma component of grief or the grief component of trauma, Horowitz and his colleagues (1997) coined the term *complicated grief*, and Holly Prigerson and her colleagues coined the term *traumatic grief* (Prigerson et al., 1995). Both constructs of complicated grief and traumatic grief evolved overtime through collaborative efforts. Most significantly, in 2009, Prigerson and colleagues used data obtained by the Yale Bereavement Study (YBS), a National Institute of Mental Health (NIMH) investigation aimed at reaching a consensus of PGD criteria, to write a collaborative paper about PGD. Prigerson and Horowitz, along with several other leading contemporary grief researchers, published a paper together reporting a consensus not only on a

name, “Prolonged Grief Disorder” (PGD), but more importantly, on clinical diagnostic criteria for the disorder. Google Scholar indicates that this paper has been cited 612 times since it was published in 2009. However, the characteristics of the YBS sample used by Prigerson and colleagues present concerns about generalizability of the results: the sample consisted of mostly (73.1%) women, who were almost exclusively white (95.3%), with an average age of 61.8 years, and all the participants were widowed by natural causes. This is a problem because not everyone will lose loved ones to natural causes later in life. In addressing this limitation of the sample, Prigerson and colleagues (2009) argued, “although there is a need to confirm the results in non-widowed bereaved persons, we consider widowhood following an older spouse’s death from natural causes to be the prototypical case of bereavement”. The authors go on to cite statistics from the National Center for Health Statistics (2008), which indicate that only 7% of deaths in the United States are from unnatural causes (e.g., homicide, suicide, accident). The implication being that because those who have been bereaved by unnatural means make up such a small proportion of all the bereaved in the United States, a sample of only those bereaved by natural means generalizes well to the general population. This argument holds up until one considers that people bereaved by sudden and/or violent means have been identified as being more at risk to have abnormal grief reactions (Green et al., 2001; van Denderen, de Keijser, Kleen, & Boelen, 2015). Furthermore, recent research indicates that the most at risk population for complicated grief or PGD may be those bereaved by homicide (McDevitt-Murphy, Neimeyer, Burke, Williams, & Lawson, 2012; Kristensen, Dyregrov, Dyregrov, & Heir, 2016). Yet, much of the research of PGD continues to come from the same sample of older women widowed by *natural* means (see for example, Barry, Kasl, & Prigerson, 2001; Johnson, Vanderwerker, Bournstein, Zhang, & Prigerson, 2006; Johnson, Zhang, Greer, & Prigerson, 2007; Latham & Prigerson,

2004; Prigerson et al., 2009; Silverman, Jacobs, Kasl, Shear, Maciejewski, et al, 2000; Silverman, Johnson, & Prigerson, 2001; Vanderwerker, Jacobs, Parkes, & Prigerson 2006). If those bereaved by unnatural means continue to be overlooked in PGD research because they make up only a small proportion of bereaved people, then their bereavement responses will continue to be poorly understood and possibly pathologized. Clearly, more attention needs to be paid to those bereaved by unnatural means (e.g., homicide) particularly in light of the recent shift towards a diagnosis for PGD.

At the same time as this press towards a diagnosis for PGD, a growing body of empirically rigorous research supports Freud's view of almost one hundred years ago (1917) that most people will progress through uncomplicated bereavement normally (e.g., Bonanno, 2004), and will not require treatment (e.g., Lilienfeld, 2007; Neimeyer, 2000). Even proponents of PGD acknowledge that most people in the general population will progress through grief normally and not require treatment (Prigerson et al., 2009). While it is fair to say that about 10% of bereaved individuals will be significantly impaired by their grief for an extended period of time, and whom would likely benefit from therapeutic intervention (Prigerson et al., 2009), it is also important to consider that therapeutic interventions for what is considered normal grief may cause harm among some people (Lilienfeld, 2007; Neimeyer, 2000). Indeed, Neimeyer, perhaps the most recognized contemporary grief researcher, published a meta-analysis of 23 randomized control trials (RCTs) of grief therapy in 2000. He found that 38% of the sample would have fared better without any psychological treatment. In other words, they got worse with therapy, suggesting an iatrogenic effect of grief counselling among some individuals. Further, the overall benefits of grief therapy were small ( $d = .13$ ) across the 23 RCTs. Interestingly, when the mourners in Neimeyer's sample were divided by their grief reactions into "normal" or

“traumatic”, the rate of deterioration was 50% in the “normal” group and 17% in the “traumatic group”, suggesting traumatic bereavement has a unique association with grief and grief counselling. This also suggests that not all treatment was equal for mourners who were traumatically bereaved. Clearly more research of traumatic bereavement is needed to help inform both theory and counselling practice.

Researchers like Niemeyer and Burke (2011) have acknowledged the importance of studying the interplay between trauma and grief, and have also recognized the utility of studying homicide bereavement as a medium for exploring these two constructs. These researchers have argued that survivors of homicide are worthy of research because homicide loss is an especially distressing form of loss and because homicide bereavement can manifest in *both* pathological trauma and grief responses (Currier, Holland, Coleman, & Neimeyer, 2008).

### **Homicide Bereavement and Rationale for Sample used in the Present Thesis Study**

Homicide bereavement is a special case of bereavement and, by its very nature, an almost perfect example of complicated grief; homicide bereavement, by definition, involves the reliably intertwined experience of trauma and grief (Green, 2000; Niemeyer & Burke, 2011). In this section I first describe the impact and effect of homicide on families, and include a brief discussion of PGD as it relates to family members of homicide victims. Then, because the data I used for my thesis study were collected from a sample of homicidally bereaved siblings, I describe and discuss homicide bereavement in siblings of homicide victims specifically.

**Homicide bereavement is a family affair.** In 2005, Asaro and Clements published a paper titled, *Homicide Bereavement: A Family Affair*. Asaro and Clements, both forensic nurses, reviewed the existing literature and presented and described the multiple issues and challenges confronted by families as a whole and as individuals, in the aftermath of a family member’s

murder. The most recent statistics indicate that in 2014 there were 516 homicides in Canada, equating to a per capita homicide rate of 1.45 per 100,000 (Statscan, 2014). In comparison, the most recent statistics from the United States reveal a per capital murder rate of 4.5 per 100,000 in 2013 (Federal Bureau of Investigation [FBI], 2013), which equates to 14,196 homicides. This equates to an average of 1.41 people murdered each day in Canada in 2014, and one person murdered every 37 minutes in the United States in 2013 (Statscan; FBI). Estimates of the number of loved ones left behind after a homicide vary. It is difficult to estimate how many loved ones are left behind every year in Canada or the United States because crime statistics do not include homicidally bereaved family members. In 1989, in an attempt to estimate how many loved ones are left behind after a homicide, Redmond analyzed over 300 genograms of homicide survivor families. Redmond found that on average 7-10 close relatives were left behind to mourn each homicide victim. Based on Redmond's calculation, a conservative estimate is between 3,612 and 5,160 Canadians, and 99,372 and 141,960 Americans, lose a close family member to homicide every year. Many different terms are used to describe the population of people who are bereaved by homicide and there is yet to be a consensus. In a 2015 review of the homicide bereavement literature, van Denderen and colleagues found 11 synonyms used to describe this population, including covictim, survivor, victim, loved one, and secondary victim. For the purposes of this thesis, individuals left behind after a homicide will be referred to as 'homicidally bereaved' and 'homicide survivors.'

Homicidally bereaved individuals are simultaneously exposed to a traumatic event and to grief (Green, 2000; Niemeyer & Burke, 2011). Loss through a traumatic means (as is loss by homicide) is conceptualized by the American Psychological Association (APA) as a traumatic stress event that has the potential to cause PTSD as defined by the DSM-V (APA, 2013). Losing

a family member to murder instantly pushes family members into the dual or conjoint experience of trauma and grief. It is not surprising then that homicide bereavement distress is thought to reflect *both* traumatic distress (intrusive thoughts, feeling ‘on edge’, avoidance behaviours, nightmares) and loss distress (missing and longing for loved one, avoiding reminders of loved one) (Green, 2000; Rynearson & McCreery, 1993).

Those bereaved by homicide have, until relatively recently, been largely overlooked and forgotten by researchers (e.g., Armour, 2002; Masters et al., 1988). This is alarming as it has been suggested that people bereaved by homicide may represent the most vulnerable among us (Casey, 2011). In addition to the loss of a loved one and being thrust into new physical worlds of police, media, and the criminal justice system among a multitude of other factors, family members bereaved by homicide must also cope psychologically with the violent, sudden, and intentional features of the death. In the empirical grief and bereavement literature, certain features of the death have been associated with poorer outcomes of prolonged grief, depression, and PTSD (Breslau et al., 1998; Green et al., 2001; van Denderen et al., 2015). Among those left to mourn the loss, bereavement following *violent* death has been associated with higher risk of PTSD and depression (van Denderen et al., 2015), and *sudden deaths* have been found to be a significant contributor to the development of PTSD (Breslau et al., 1998). *Interpersonal* traumas are more detrimental to psychological well-being than traumas that are not interpersonal (Gustafsson, Nilsson, & Svedin, 2009; Krupnick et al., 2004). Some researchers have suggested that interpersonal traumas may be more distressing because the coherence of self and world schemas are threatened (Cason, Resick, & Weaver, 2002). In response to an interpersonal trauma, victims must either alter their schemas or distort the event in order to integrate the information into their memory structures or schemas (see Cason et al., 2002 for review).

In addition to homicidal death being violent, sudden, interpersonal, and intentional, many family members of homicide victims report experiencing the trauma of secondary victimization following the murder. Secondary victimization occurs when the greater social systems' responses make the effect of the crime even worse (Casey, 2011). As a form of trauma, secondary victimization poses an additional threat to existing views of, for example, the world as benevolent and just. The criminal justice system and the media are two examples of systems whereby homicide survivors encounter secondary victimization. To this point, in 2011, Casey interviewed 400 family members of homicide victims and found 51% of the sample reported the criminal justice system was the most difficult thing to deal with after the homicide. Some homicide survivors report that the media were helpful after the murder of their loved one, for example providing the bereaved with information about the progress of the investigation (Casey, 2011). However, a recent study of the impact of media exposure on the trauma and grief responses of 103 parents and siblings bereaved by the 2011 Utøya Island Terror Attack, found bereaved family members who reported higher media exposure (more than 4 hours per day) in the first month after the attack, had significantly higher levels of PGD than those who reported less media exposure following the attack (Kristensen et al., 2016). This finding suggests that media exposure may be associated with the costs of homicide among homicidally bereaved family members. Additionally, Casey (2011) found the costs of homicide included financial costs to families. The average cost to families following a murder was £37,000 (approximately 54,000\$ CAD); costs incurred ranged from lawyer's bills, funeral expenses, travel to and from court, to cleaning up the crime scene. After this experience, it is no surprise that the murder of a loved one can challenge one's belief in benevolence and justice (Magwaza, 1999). Taking things together, it seems unsurprising then that homicide survivors are thought to be at high risk for

experiencing PTSD symptoms (van Denderen et al., 2015). Not only this, homicide survivors have been shown to have higher rates of PGD than those bereaved by natural causes (Boelen, Van Denderen, & De Keijser, 2015).

***Prolonged Grief Disorder (PGD) among homicidally bereaved family members.*** In a very recent, and rare, study of the prevalence of PGD among homicidally bereaved individuals, a team of researchers assessed parents and siblings of young murder victims and found 80% of the parents and 75% of siblings, met the criteria for PGD two years after the murder (Kristensen et al., 2016). These rates are clearly enormously high rates of PGD and well above the often-quoted 10% prevalence rates that are expected in the general population (see Prigerson et al., 2009 for review). This is alarming because, if we are to take the results on face value, the rates of PGD indicate that the *normal response* to homicide bereavement is *mental disorder*. How can this be? This is especially confusing when one considers that the normal response to homicide bereavement has yet to be determined, perhaps, particularly so for siblings of murder victims who, as a group, are understudied (Freeman et al., 1996). Perhaps one reason for the higher than expected rates of PGD reported by Kristensen et al. (2016) among parents and siblings bereaved by homicide, can be traced back to the samples used in the development of PGD criteria and diagnostic tools by Prigerson and colleagues (for review, see earlier discussion). By way of reminder, much of the PGD research focused on bereaved older women who had lost a spouse due to natural causes (see Prigerson et al., 2009). It seems logical to conclude that diagnostic criteria and assessment tools normed on a sample of people bereaved by natural means would be inappropriate for use with people bereaved by unnatural means (i.e., homicide) and could result in inflated rates of PGD in this population. Perhaps unusual or extreme responses to natural death may be pathological and warrant a diagnostic label, but labeling those same responses in

people bereaved by unnatural means as pathological discounts what we already know about bereavement following unnatural means. Until further research is conducted, speculations about the higher than expected rate of PGD among those bereaved by homicide remains to be pure speculation.

Casey (2011) suggested that people bereaved by homicide may represent the most vulnerable among us as they have had to endure the most unthinkable breakdown of societal rules and norms—the violent and intentional killing of their loved one through no fault of their own. The decision to label homicide bereavement as psychopathology discounts the behavior of the individual and it also prevents us from looking further and examining external factors, forces, and realities motivating the response (Ballou & Brown, 2002, p. 38). A myriad of external factors may prolong trauma and grief responses among family members and close relatives (and friends) bereaved by homicide (e.g., Asaro & Clements, 2005). As noted already, other than the conjoint experience of trauma and grief, the nature of homicidal bereavement is poorly understood. While there is a growing body of work characterizing homicide bereavement, most studies to date have either relied on anecdotal reports (e.g., Farrant, 1998; Aldrich & Kallivayalil, 2013), or used small sample sizes (e.g., Applebaum & Burns, 1991; Clements & Burgess, 2002), or non-scientific data collection and analyses (e.g., Casey, 2011). In other words, few studies have examined the natural course of trauma and grief following homicide bereavement using large sample sizes and rigorous methods (e.g., Kristensen, Dyregrov, Dyregrov, & Heir, 2016; Zinzow, Rheingold, Byczkiewicz, Saunders, & Kilpatrick, 2011). The nature of homicidal bereavement in siblings of homicide victims is even less understood because their unique experiences are seldom the subject of dedicated research (Freeman et al., 1996).

**Homicidal bereavement in siblings.** No study to date has investigated the nature of homicidal bereavement distress with a large homogenous sample of siblings bereaved by homicide. We know siblings are bereaved by homicide but the exact numbers of sibling survivors remain unknown because homicide survivors are not recorded in the crime statistics. We also know anecdotally and from the few studies that have been published, that siblings of homicide victims are impacted and affected by the homicide loss of a sister or brother. For example, homicidally bereaved children, youth, and young adults are typically left having to deal with grieving and traumatized parents (Applebaum & Burns, 1991; Freeman et al., 1996; Pretorius, Halstead-Cleak, and Morgan, 2010). A sibling's grief or trauma may be ignored or discounted when compared to the distress of their parents who have lost a child to murder (Applebaum & Burns, 1991; Asaro & Clements, 2005; Clements & Burgess, 2002; Pretorius et al., 2010).

On the rare occasion when siblings are being researched, they are often grouped together with other family members; e.g. siblings, aunts, uncles, grandparents, parents, and/or spouses (e.g., Amick-McMullan et al., 1991; Baliko & Tuck, 2008; Mezey, Evans, & Hobdell, 2002; Simmons, Duckworth, & Tyler, 2014), or included with children and youth who have lost a parent, aunt, uncle, or cousin (e.g., Clements & Burgess, 2002). In 2002 Clements and Burgess interviewed 13 children aged 9 to 11 about their response to a family members murder. Some of the children in Clements and Burgess sample had lost a sibling, but others had lost a parent, aunt, uncle, or cousin. Nonetheless, findings from the 13 interviews revealed that the children felt sad, depressed, guilt, lonely, fearful, angry, and had trouble adjusting back to environments like home, school, and peers after the murder.

Applebaum and Burns (1999) conducted one of no more than a handful of studies in existence that has examined sibling bereavement from the perspective of siblings themselves, following a sibling's homicide. They compared PTSD symptoms of 10 siblings who lost a brother or sister to homicide, to 10 siblings who lost a sibling to accident. Applebaum and Burns found that children in both groups experienced PTSD symptoms following the loss but that parents were not necessary aware of their children's symptoms. The authors suggest that, possibly, the parents were unaware because they too were coping with their own PTSD symptoms following the loss. Ann Farrant (1998) wrote about general sibling bereavement in her non-peer reviewed book of case studies, *Sibling Bereavement: Helping Children Cope with Loss* and noted that it is common for siblings' feelings about the loss to be overlooked by parents who are concurrently dealing with their own pain and do not have the emotional resources to deal with their surviving children's experiences of trauma or grief. Furthermore, Farrant wrote that it is possible that children may push aside their own feelings and try to help with parents following the loss, which may prevent or delay the sibling's grief process. All this means that not only must the homicidally bereaved siblings manage their own grief, trauma, and distress, but they must also live with grieving parents. This is amply supported by what one bereaved mother said to the PI of the greater research program from which data for my thesis are drawn: "On the day that our daughter was murdered, our son didn't only lose his sister, he lost his parents too" (P. de Villiers, personal communication, February 2009). Living with grieving parents means that these siblings may have to deal with compromised parents (Farrant, 1998; Freeman et al., 1996; Vincent, 2009).

Freeman, Shaffer, and Smith (1996) interviewed 15 siblings whose older sibling was the victim of homicide, and a control group of 10 school children matched on sex, age, and ethnicity.

They found that homicidally bereaved siblings demonstrated more internalizing problem behavior, PTSS, depression, anxiety, and psychosocial dysfunction than siblings in the control group (Freeman et al., 1996). Despite having much poorer functioning than controls, Freeman and colleagues (1996) found that only a few of the homicidally bereaved siblings were receiving community services in an attempt to ameliorate the distress. Perhaps in response to the findings from their study, Freeman and colleagues (1996) wrote that siblings were the “neglected victims of homicide.” Certainly however, both Applebaum and Burns (1999), and Freeman et al. (1996) reported avoidance behavior among siblings bereaved by homicide, as siblings often avoided discussing the deceased in order to shield their parents from further distress. Freeman and colleagues suggested that avoidance behavior may interfere with the grieving process. While parental distress likely contributes to a sibling’s distress following the murder, numerous other factors likely play a role, including the loss of their sibling as a social companion (Armour, 2006), which is also likely to add weight to the loss experience of a sibling.

In 2010, Pretorius and colleagues conducted a phenomenological study of the lived grief experiences of homicidally bereaved siblings. Their sample consisted of three sisters aged 24, 26, and 39 whom had all lost a brother to murder. Pretorius and colleagues identified seven major themes, namely (a) shock and disbelief that their sibling was gone and their death had been violent, (b) recollection of memories of their sibling, and guilt and self-blame for not preventing the murder, (c) rupture and fragmentation of the family system, (d) perceived lack of support, (e) desire for justice and revenge, (f) reformulation of beliefs, and (g) resilience, healing and growth. Participants in Pretorius and colleagues’ study also felt that they could not rely on their parents for support as their parents were often too overwhelmed by their own grief. A

quote from a participant in the study highlights the feeling of being forgotten following sibling homicide,

We siblings, we are forgotten, you know. They would rather have a session with your parents, finding out from them because they have lost a child. You have only lost a brother; it doesn't really matter, but I think that's not fair – we are also human. (p. 6)

Although Pretorius and colleagues' (2010) sample was very small, the findings were based on the siblings' self-report of their lived experience of homicide bereavement and provided an opportunity for these siblings' voices to be heard, a goal of the present study as well.

### **Rationale for Study Sample**

Coming in to my thesis, I was particularly interested in the intersection of trauma and grief. In this review of the literature, I have attempted to make the case for why homicidal bereavement makes for a particularly rich and salient entry point to exploring and examining the intersection between trauma and grief. Some evidence even suggests those bereaved by homicide experience even higher levels of both trauma and grief distress than those bereaved by accident or suicide (Currier, Holland, Neimeyer, 2006; Murphy, Johnson, Wu, Fan, & Lohan, 2003). Because I had access to a data set comprising data for siblings of young homicide victims, my examination of the intersection of trauma and grief in traumatic bereavement is anchored within the sibling experience of homicidal bereavement. An additional benefit of this study completed for my thesis, is that it might therefore also enrich understanding of the normal course of homicide bereavement among siblings. This will be a worthy contribution if it helps in some small way to inform and guide societal responses as well as intervention responses. The lack of understanding of the normal course of homicide bereavement among siblings, particularly concurrent trauma and grief responses, is further complicated and compounded by a

recent push to legitimize PGD, a proposed diagnosis of pathological grief (Prigerson et al., 2009; Rosner, 2015).

**Thesis Research Objectives, Questions, and Hypotheses.** The purpose of this study was to explore the overlap and possible synergy between trauma and grief. To do this, I examined subjective distress responses to the homicidal loss of a sibling, as indexed by self-report on the IES-R (Weiss, 2007). The overarching research question for this study was: Are event and loss related distress distinguishable among siblings bereaved by homicide, as measured on the IES-R? My two leading objectives for this study were to contribute to the theoretical and clinical knowledge bases and understanding of (a) the overlap and distinguishing features of co-occurring trauma and grief; and (b) what the implications and applications of this learning are for counselling people bereaved by the traumatic loss of a loved other. In addition, more information and insight into sibling homicide bereavement will fill a large gap in the literature and practically for siblings of homicide victims themselves, by serving as a guideline for the support and help that frontline victim service workers as well as counselling professionals can provide to homicide-bereaved siblings.

### **Research Questions and Hypotheses**

The overarching research question I asked was: Are event and loss related distress distinguishable among siblings bereaved by homicide, as measured on the IES-R? To answer the overarching research question, I asked three sub-questions, and derived hypotheses from Research Questions 1 and 2 for hypothesis testing. Specifically, the research questions and hypotheses were:

**Research Question 1: Do levels of reported subjective distress differ between homicidally bereaved siblings and the comparison group?**

**Question 1A: Are the Murder Group's *event*-related IES-R (Murder) scores distinguishable from the Comparison Group's IES-R scores?**

*Hypothesis 1A:* The Murder Group will report a significantly higher total mean IES-R (Murder) score compared to the total IES-R score for the Comparison Group.

**Question 1B: Are the Murder Group's *loss*-related IES-R (Loss) scores distinguishable from the Comparison Group's IES-R scores?**

*Hypothesis 1B:* The Murder Group will report a significantly higher total mean IES-R (Loss) score compared to the total IES-R score for the Comparison Group.

**Research Question 2: Among homicidally-bereaved siblings, are subjective distress responses associated with the murder (i.e., event) and the loss of a sibling distinguishable as indexed by scores on the IES-R (Murder) and IES-R (Loss)?**

Three hypotheses were derived and tested to answer Research Question 2:

*Hypothesis 2A:* There will be a significant difference between the total mean scores on the IES-R (Murder) and total mean scores on the IES-R (Loss) reported by the Murder Group.

*Hypothesis 2B:* Within the Murder Group, an exploratory quantitative analyses of item difference scores will reveal one or more item comparison differences across the 22 items of the IES-R (Murder) and IES-R (Loss), as indicated by average item difference scores.

*Hypothesis 2C:* Within the Murder Group, an exploratory quantitative analyses of item difference scores will reveal systematic differences among average item difference scores across the 22 IES-R items divided by subscale (i.e., Intrusion, Avoidance, and Hyperarousal).

**Research Question 3: Among homicidally-bereaved siblings, does time since the murder-loss of a sibling have a relationship with the level of subjective distress responses associated**

**with the murder (i.e., event) and the loss of a sibling, as indexed by scores on the IES-R (Murder) and IES-R (Loss)?**

Research Question 3 was exploratory and therefore no hypotheses were derived for testing.

## **Chapter 2**

### **Methods**

The overarching research question for this study is: Are event and loss related distress distinguishable among siblings bereaved by homicide, as measured on the IES-R? To address this question, I used a subset of data previously collected for a study conducted to explore if homicide bereavement distress was distinguishable from that of other challenging or adverse life event (including bereavement) distress. Using these data to answer my research question, I asked three questions: 1) Do levels of reported subjective distress differ between homicidally bereaved siblings and the comparison group? 2) Among homicidally-bereaved siblings, are subjective distress responses associated with the murder (i.e., event) and the loss of a sibling distinguishable as indexed by scores on the IES-R (Murder) and IES-R (Loss)? 3) Among homicidally-bereaved siblings, does time since the murder-loss of a sibling have a relationship with the level of subjective distress responses associated with the murder (i.e., event) and the loss of a sibling as indexed by scores on the IES-R (Murder) and IES-R (Loss)? All data were carefully re-examined for any data entry errors and missing data, and then subjected to further data analyses and examination.

#### **Research Approach and Study Design**

I employed a cross-sectional, iterative survey design using group comparisons. I compared previously collected data from 67 individuals who lost a sibling to murder while growing up (Murder Group), and 80 comparison individuals who grew up with a sibling (Comparison Group), but who had no experience of homicide bereavement. The Murder Group and the Comparison Group were matched, as a group, on sex and age. Outside of homicide loss, participants in the Comparison Group reported a broad set of adverse life experiences, including

potentially traumatic stressors. Adverse life experiences reported by participants in the Comparison Group included, for example, death of a parent for five participants, death of a sibling, suicide of a loved one, sexual assault, loss of home to fire, severe physical disability as a result of being involved in a motor vehicle accident, immigration, bullying, poverty, and chronic alcoholism in the home.

Data from both groups have been gathered as part of a larger research program run by my thesis supervisor and the research program's principle investigator (PI), Dr. Susan Tasker, out of the University of Victoria. The aim of Dr. Tasker's (referred to from here on as the PI) research program is to investigate the experiences and impacts of homicide on siblings of homicide victims. This is being done by assessing the needs, concerns, and general health and wellbeing outcomes of siblings of homicide victims; and their suggestions for frontline services. The data for the Murder Group were collected between 2009 and 2013, resulting in a sample of 67 siblings (51 sisters, 16 brothers) of young (young adulthood and younger) murder victims. The comparison-group study was recently completed comparing the general health and wellbeing of the Murder Group with the Comparison Group. Comparison Group participants were recruited between 2014 and 2015, resulting in a sample of 80 comparison siblings in the Comparison Group (64 sisters, 16-brothers). Both groups completed a battery of online questionnaires. The instruments in the battery measured a broad range of variables aimed at gathering quantitative and qualitative information on demographic variables, life experience, health status, and subjective distress.

## **Brief Overview of Participant Recruitment, Sample Characteristics, Data Collection, and Instrumentation of the Existing Comparisons-Group Study**

In this section I provide a brief overview of participant recruitment, the achieved samples, and the measures used in the recently completed comparisons-group study. I begin by first providing information on sample recruitment for the Murder Group and Comparison Group, and a description of the characteristics of the achieved samples.

**Recruitment of Murder Group: Siblings bereaved by homicide.** The PI used non-probability sampling methods to recruit participants (Research Ethics Protocol # 09-326, Human Research Ethics Board (HREB), University of Victoria, Canada). The participant selection criteria were: siblings of young (aged 25 or younger) Canadian murder victims who were 25 or younger at the time of their brother or sister's murder. Potential study participants were informed about the study through various forms of advertisement including an electronic study poster (in English and French) posted on homicide and victims groups websites (e.g., Canadian Victim Resource Foundation, Canadian Parents of Murdered Children, Canadian Crime Victim Foundation), victim organization list serve broadcasts and monthly newsletters, a one-time press release; and word of mouth exposure from victim service workers, victim families, and support groups. In addition, several participants volunteered to participate in the study after attending the Canadian Crime Victim Gala Event in 2009 at which the grant for the research program was awarded to the PI. Similarly, additional participants volunteered to participate after hearing her speak at the Victims of Homicide Conferences held in 2011 and 2013. Siblings younger than 13 years who wanted to participate were required to provide written consent from a parent before participating in the survey. However, as per requirements of the University of Victoria's HREB, youth aged 13 to 16 years were not required to provide written consent from parents.

When a sibling was interested in participating they were directed to contact the PI either by phone or email. Many homicidally bereaved siblings were eager to participate in the research because they were hopeful that the study would help to improve how family members bereaved by homicide, particularly siblings, are supported following the murder of a young person. In fact, siblings who did not meet the original criteria for participation in the study often contacted the PI knowing that they did not meet the criteria, and yet expressing a strong desire to participate in the research. Siblings who wanted to participate but who did not strictly meet the initial criteria were either older than twenty-five at the time of their sibling's murder, were Americans, or their sibling was a half-sibling. These siblings bereaved by homicide had a strong interest in participating in this research and the PI felt it unethical to deny them a chance to participate simply because they did not fall into the narrow sample criteria. For the reason that an overarching purpose of this study was to give a voice to siblings as the overlooked victims of homicide, these siblings were not turned away and were welcomed into the study. Consequently, minor adjustments were made to the inclusion criteria for sample collection (and modifications to the ethics protocol were approved): the age range was widened to include siblings who were more-or-less *thirty* or younger at the time of the murder, Americans were allowed to participate, and siblings whose half-brother or half-sister were murdered were included. Recruitment methods and the decision to expand the inclusion criteria for ethical reasons, indicate the self-selected nature of the achieved sample. Having a self-selected sample provides some assurance that none of the participants felt coerced into participating and, furthermore, their voluntary participation suggests that they themselves felt psychologically ready to participate in a study of this nature. In the end, the achieved study sample consisted of 67 siblings (40 Canadian, 27 American) of 56 murdered siblings (30 Canadian, 26 American), murdered between 1957 and

2010. Exactly 50% of the Canadian and 67% of the American participants' siblings were murdered between 2000 and 2010.

*Collapsing across Canadian and American sibling participants.* Widening the narrow inclusion criteria to allow Americans and participants older than 25 to participate in the study, necessitated an even more careful examination of possible systematic differences before collapsing across those groups. Collapsing across Americans and Canadians was desirable in order to retain sample size and statistical power. However, in order to collapse across the groups, the groups needed to be assessed for homogeneity. Differences (a) between Americans and Canadians, (b) among age groups, and (c) as a function of when the murder occurred, were assessed for homogeneity using 9 comparisons:

- Comparison 1: Canadian vs. American siblings
- Comparison 2: Canadian siblings  $\leq 25$  vs. American siblings  $\leq 25$
- Comparison 3: Canadian siblings  $\leq 18$  vs. American siblings  $\leq 18$
- Comparison 4: Canadian siblings vs. American siblings who lost a sibling between 1980 and 1999
- Comparison 5: Canadian siblings vs. American siblings who lost a sibling between 2000 and 2010
- Comparison 6: Canadian siblings  $\leq 25$  vs. Canadian siblings  $>25$
- Comparison 7: American siblings  $\leq 25$  vs. American siblings  $>25$
- Comparison 8: Canadian siblings who lost a sibling between 1980 and 1999 vs. between 2000 and 2010
- Comparison 9: American siblings who lost a sibling between 1980 and 1999 vs. between 2000 and 2010

Comparisons were subjected to independent samples *t*-tests across 13 continuous variables, and to chi-squared tests for the 5 non-continuous categorical variables. The 13 continuous variables were: number of years since the murder, participant's age at time of murder, age-difference between participant and murdered sibling, perceived level of social support received following the murder, perceived level of current social support, perceived level of victimization following the murder, current perceived level of victimization, satisfaction with police communication, satisfaction with the investigation, satisfaction with the criminal justice system, satisfaction with the media's communication with them, satisfaction with the media's reporting, and satisfaction with victim service and criminal injury programs. The 5 non-continuous variables were sex, participant's education level at time of the murder, whether the murder was cleared or not, relationship between the offender and victim, and whether the participant attended court or not. Mean imputation was used for both continuous and non-continuous data that appeared to be missing completely at random after careful visual inspection and made up less than 10% of the data. Given the high number of *t*-tests, conservative Bonferroni adjusted *p*-values were employed to control for Type 1 error. A  $p < 0.004$  value was used for *t*-tests ( $p < 0.05/13$ ), and a  $p < 0.01$  value was used for Chi-squared tests ( $p < 0.05/5$ ). Findings were as follows:

- **Comparison 1: Canadian vs. America siblings**

No statistically significant differences were found across all 18 variable comparisons for Comparison 1. No differences were found despite (a) the difference in the span of years when the homicides occurred for the Canadian sample (1957-2010), and American sample (1971-2010); and (b) more American (67%) than Canadian (50%) participants being homicidally-bereaved in the 2000s.

- **Comparison 2: Canadian siblings  $\leq 25$  vs. American siblings  $\leq 25$**

No statistically significant differences were found across all 18 variable comparisons for Comparison 2. Although not a significant difference based on the Bonferroni adjusted alpha level of 0.004, one variable had a significance of  $p = 0.006$ ,  $d = -0.96$ . Namely, using a 7-point Likert rating scale ( $1 =$  no agreement,  $3 =$  average agreement,  $5 =$  good agreement,  $7 =$  total agreement), Canadian siblings reported less agreement ( $M = 2.21$ ,  $SD = 2.01$ ) than American siblings ( $M = 4.22$ ,  $SD = 2.18$ ) with the statement, “I was satisfied with the support and services offered by crime victim services and/or criminal injury programs (e.g., emotional support and counselling, compensation).”

- **Comparison 3: Canadian siblings  $\leq 18$  vs. American siblings  $\leq 18$**

No statistically significant differences were found across all 18 variable comparisons for Comparison 3.

- **Comparison 4: Canadian siblings vs. American siblings who lost a sibling between 1980 and 1999.**

One statistically significant difference was found across all 18 variable comparisons for Comparison 4. Thirty-five percent ( $n = 14$ ) of the Canadian siblings, and 25.9% ( $n = 7$ ) of the American siblings, lost a sibling between 1980 and 1999. The only statistically significant ( $p = 0.002$ ,  $d = 0.60$ ) mean difference was the siblings’ level of agreement with the statement, “I have been satisfied with the way the criminal justice system handled the murder.” Agreement was rated on a likert rating scale of 1-7 ( $1 =$  no agreement,  $3 =$  average agreement,  $5 =$  good agreement,  $7 =$  total agreement). American siblings reported greater ( $M = 3.2$ ,  $SD = 3.0$ ) agreement with the statement, than Canadian siblings ( $M = 1.8$ ,  $SD = 1.4$ ). This was taken to indicate greater satisfaction with the criminal justice system among American versus Canadian

siblings of young homicide victims murdered between 1980 and 1999. However, given the large standard deviation in American siblings' rating of the criminal justice system, this finding should be interpreted with caution.

- **Comparison 5: Canadian siblings vs. American siblings who lost a sibling between 2000 and 2010.**

There were no statistically significant differences found across the 18 comparisons for Comparison 5. Here, 50% ( $n = 20$ ) of the Canadian, and 66.6% ( $n = 18$ ) of the American siblings, were homicidally-bereaved between 2000 and 2010.

- **Comparison 6: Canadian siblings  $\leq 25$  vs. Canadian siblings  $>25$**

One statistically significant difference was found across all 18 variable comparisons for Comparison 6. More than three quarters (77.5%) of Canadian siblings were 25 years or younger when their sibling was murdered; 22.5% were older than 25 (range = 26-40 years). The single statistically significant ( $p = 0.004$ ,  $d = -0.86$ ) difference found for this comparison was for the age-gap between siblings and their murdered siblings. Siblings who were 25 or younger were more likely to have been closer in age to their sibling ( $M = 4.49$  years,  $SD = 3.28$ ,  $range = 1-16$ ) than were siblings who had been older than age 25 ( $M = 7.33$  years,  $SD = 3.33$ ,  $range = 1-12$ ), when their sibling was murdered. Although this difference was significant, it was also a small age difference, less than 3.0 years; therefore, this finding alone is likely not a meaningful enough difference to warrant not collapsing across Americans and Canadians.

- **Comparison 7: American siblings  $\leq 25$  vs. American siblings  $>25$**

No statistically significant differences were found across all 18 variable comparisons for Comparison 7. More than three quarters (77.7%) of the American siblings in the sample were 25 years or younger when their sibling was murdered; 22.2% were older than 25 (range = 26-37

years). Being younger or older than 25 years at the time of the homicide appeared, therefore, to not be a distinguishing factor within the American sample.

- **Comparison 8: Canadian siblings who lost a sibling between 1980 and 1999 vs. between 2000 and 2010.**

One statistically significant difference was found across 17 variable comparisons for Comparison 8. Since this comparison involved dividing the groups by when the murder occurred, the groups were not compared across the number of years since the murder as that would have been redundant. For Comparison 8, 35% ( $n = 14$ ) of the Canadian siblings lost their brother or sister between 1980 and 1999, and 50% ( $n = 20$ ) lost their brother or sister between 2000 and 2010. The only statistically significant ( $p = 0.004$ ,  $d = -.58$ ) difference between the two groups of Canadian siblings grouped by when the murder occurred (i.e., recency of homicidal bereavement), was siblings' rating of their level of agreement regarding satisfaction with the criminal justice system. Siblings in the 1980-1999 group reported less ( $M = 1.9$ ,  $SD = 1.5$ ) agreement than those in the 2000-2010 group ( $M = 3.13$ ,  $SD = 2.6$ ) with the statement, "I have been satisfied with the way the criminal justice system handled the murder" (rated on a likert rating scale of 1-7, as described earlier). This finding was taken as promising, possibly indicating that the Canadian criminal justice system may be improving.

- **Comparison 9: American siblings who lost a sibling between 1980 and 1999 vs. between 2000 and 2010.**

No statistically significant differences were found across all 17 variable comparisons for Comparison 9. Here, 26% ( $n = 7$ ) of the American siblings lost a brother or sister between 1980 and 1999, and 67% ( $n = 18$ ) lost a brother or sister between 2000 and 2010.

In sum, 3 statistically significant differences out of a total possible 150 differences (18 variables x 7 comparisons + 17 variables x 2 comparisons) were found across Comparisons 1 to

9. Although a difference was found in Comparison 4 between levels of agreement on satisfaction with the criminal justice system for American and Canadian siblings who lost a sibling to murder in the years between 1980-1999, this was the only difference; further, the high standard deviation in American's reported satisfaction indicates that this finding should be interpreted with caution. Although a statistically significant within-group difference in age-gap between Canadian siblings 25 or younger versus older than 25 years-of age when the murder occurred was found for Comparison 6, the difference was less than 3.0 years between the two groups of Canadian siblings. Given this small difference, it was deemed that whilst statistically significant, the difference was unlikely to be a meaningful one. The within-group difference found in Comparison 9 between Canadian siblings bereaved between 1980 and 1999 versus 2000 and 2010, is interesting. Canadian siblings who lost a brother or sister to murder between 2000 and 2010, reported greater satisfaction with how the Canadian criminal justice system handled the murder than did siblings bereaved between 1980 and 1999. While speculative, this finding might suggest that the Canadian criminal justice system may be improving either in how it handles murder cases, or in how it addresses and relates to the interests and concerns of siblings themselves, or more directly to their parents. This finding is interesting and warrants further exploration in future research.

In sum, there were barely any differences between or within the American and Canadian groups. For clarity, the 9 comparisons were divided into 5 between-country and 4 within-country comparisons. Based on the findings from the 5 between-country comparisons (i.e., Comparisons 1 to 5), it was determined that one single item difference out of a possible 90 differences (18 variables x 5 comparisons) did not represent a systematic difference between American and Canadian siblings of young homicide victims. Similarly, based on the findings

from the 4 within-country comparisons (i.e., Comparisons 6-9), it was determined that 2 single item differences out of a possible 60 differences (18 variables x 2 comparisons + 17 variables x 2 comparisons), did not represent systematic within-group differences for either Americans or Canadians. See Table 1 for an overview of the lack of differences indicating the relative equivalency of Canadian and American siblings of young homicide victims participating in the study.

Table 1

*Collapsing Across Groups: Assessing Equivalency Among Canadian (n = 40) and American (n = 27) Siblings as Measured Across 18 Variables*

Comparisons	CA <i>n</i>	US <i>n</i>	Number of differences found	<i>p</i> <sup>1</sup>
<b>Between-Group Comparisons</b>				
1. Canadian vs. America siblings	40	27	0	
2. Canadian siblings $\leq 25$ vs. American siblings $\leq 25$	31	21	0	
3. Canadian siblings $\leq 18$ vs. American siblings $\leq 18$	19	12	0	
4. Canadian siblings vs. American siblings losing a sibling between 1980-1999	14	7	1	0.002
5. Canadian siblings vs. American siblings losing a sibling between 2000-2010	20	18	0	
<b>Within-Group Comparisons</b>				
6. Canadian siblings $\leq 25$ vs. Canadian siblings $>25$	31	9	1	0.004
7. American siblings $\leq 25$ vs. American siblings $>25$	21	6	0	
8. Canadian siblings losing a sibling in 1980-1999 vs. 2000-2010 <sup>2</sup>	14	20	1	0.004
9. American siblings losing a sibling in 1980-1999 vs. 2000-2010 <sup>2</sup>	7	18	0	

<sup>1</sup> Bonferroni adjusted alpha levels of .004 for *t*-tests ( $p = .05/13$ ), and .01 for Chi-squared tests ( $p = .05/5$ ).

<sup>2</sup> Groups were not compared across number of years since the murder. Comparisons were therefore completed across 17 variables for Comparisons 8 and 9.

Taking the findings from Comparisons 1 to 9 together, the American and Canadian samples were remarkably similar regardless of country, age of participant, or the year the murder occurred. As a result, it was deemed the samples were sufficiently similar to warrant collapsing across the data collected from American and Canadian siblings of young homicide victims, resulting in a North American sample of 67 siblings of murder victims, of whom 76% were sisters. In the existing and present study, this sample of siblings is referred to as the ‘Murder Group.’

***Sample characteristics of the Murder Group.*** On average, the siblings were 20.4 years old at the time of their brother or sister’s murder ( $SD = 8.89$ , range = 6-40 years), and 34.9 at the time of the study ( $SD = 13.56$ , range = 9-63). (See Table 2)

Table 2

*Ages of Participants in the Murder Group at the Time of the Murder*

	Sisters		Brothers	
	<i>n</i>	%	<i>n</i>	%
<b>Age at Time of Murder (Years)</b>				
6-15	15	22	9	13.4
16-25	19	28	7	10.4
26-30	7	10	0	0
>30	10	15	0	0

The 67 participants in the study represented 56 murder victims who were on average 20.9 at the time of their death ( $SD = 6.31$ , range = 15<sub>months</sub>-35<sub>years</sub>). Average age difference of

participants and their murdered siblings was 5.3 years ( $SD = 3.49$ , range = 1-16). Almost exactly half (51.5%) of the participants were a younger sibling of their murdered sibling.

For 41% of the Murder Group participants (15 of the 40 Canadian siblings, 12 of the 27 American siblings), the murder occurred 5 or fewer years before they participated in the study (i.e., between 2004-2011). For the other 60.2% of the participants (20 of the 40 Canadian siblings, 19 of the 27 American siblings), the murders occurred 10 or fewer years before participation in the study (i.e., between 1999-2011). At the time of participating in the study, 75% of the murders had been “cleared” (charges laid and/or prosecuted, or the accused had died). According to the participants who knew the relationship between their sibling and the offender, 31.2% of the victims were killed by a stranger, 52.5% by an acquaintance, and 14.8% by a family member; 10% of the participants did not know the relationship between the offender and the victim.

For a breakdown of additional demographics of the Murder Group relative to those of the Comparison Group, please see Table 3.

Table 3

*Demographics: Siblings With and Without a Sibling who was Murdered Before Adulthood*

	Murder Group ( <i>n</i> = 67)			Comparison Group ( <i>n</i> = 80)			Significance
	<i>n</i>	Mean	<i>SD</i>	<i>n</i>	Mean	<i>SD</i>	
Sex	67	24% brothers 76% sisters		80	20% brothers 80% sisters		NS
Current age	67	35	13.6	80	32	13	NS
Number of siblings	22	3	2	78	2.1	1.6	NS
Current relationship status	67	34% not in a relationship		80	45% not in a relationship		NS
Children	67	53.7% had children		80	34% had children		NS
Number of children	67	1.3	1.4	80	0.8	1.2	NS
Family stability and satisfaction growing up <sup>1</sup>	67	63% agreed		80	60% agreed		NS
Social stability and satisfaction growing up <sup>1</sup>	67	69% agreed		80	65% agreed		NS

*Note.* Significance (2-tail) was set at  $p < 0.05$  for continuous data and adjusted using MYSTAT

Bonferonni correction; and  $p < .01$  for categorical data.

<sup>1</sup> “Growing up refers” to the years from birth to 25 for the Comparison Group, and to the years growing up before the murder of their sibling for the Murder Group.

**Recruitment of the Comparison Group.** The recruitment of a comparison sample of siblings served as an extension of the original research program. The purpose for collecting a comparison sample of siblings was to have a comparison group, matched as a group on sex and age, by which to compare with siblings bereaved by homicide across several variables. Comparisons were sought for variables such as educational status, general health, wellbeing, level of distress, and so on. Ethical approval for the comparison study was obtained from the HREB at the University of Victoria in British Columbia, Canada (Research Ethics Protocol # 14-310). The target sample for the Comparison Group were individuals with at least one sibling, were at least 13 years old, literate in English, and who had not experienced homicide bereavement. Participants in the comparison group were recruited via word of mouth, list serves, social media, class presentations, snowball sampling, and informational posters within the community of Victoria in British Columbia, Canada.

***Sample characteristics of the Comparison Group.*** On average, participants in the Comparison Group were 32 years old at the time of the study ( $SD = 13.24$ , range = 13-66 years); 80% of the Comparison Group were sisters. Participants had between 1 and 9 siblings; 39% of the participants had one sibling, and 89% of the participants had between 1 and 3 siblings. All of the participants in the Comparison Group were Canadians and therefore further analyses to ensure homogeneity was not warranted with the Comparison Group, as it was with the Murder Group. Please refer back to Table 6 for a summary of findings on demographic variables contrasted against those of the Murder Group.

### **Data Collection Procedure for the Murder Group**

The PI used a CallWeb-based online survey which was programmed, hosted, and received by the Computer Aided Web Interviewing (CAWI) system used by R.A. Malatest &

Associates ([www.Malatest.com](http://www.Malatest.com)). The PI chose a web-based survey in order to maximize the reach of data collection. Web-based surveys are growing in popularity and are preferred over paper surveys as they are faster and less expensive (Heiervang & Goodman, 2011), and can result in larger sample sizes with more accurate and less biased data (Kalogeraki, 2011). Web-based surveys provide participants with more perceived anonymity and confidentiality than traditional face-to-face surveys, thus giving the participant freedom to respond honestly and openly without fear of judgment (Gorbach et al., 2013; Torangeau & Yan, 2007). Participants prefer a web-based mode of assessment for trauma research to either an interview or a ‘paper and pencil’ survey when given the choice as web-based surveys are perceived as being more confidential (DiLillo *et al.*, 2006). Further, some empirical evidence suggests web-based assessments of trauma and trauma distress are just as reliable as ‘paper and pencil,’ and may be less intrusive than other modes of assessment (Read, Farrow, Jaanimägi, & Ouimette, 2009). It is important to note also that some HREBs are reluctant to grant ethical approval for studies in which participants are asked about traumatic events for fear that asking sensitive questions may cause harm to the participants (Yeater & Miller, 2014). However, a recent meta-analysis of 70 studies of participant reactions to trauma research found that although trauma research can increase immediate distress, the increase was not severe and participants generally find participation in the research to be a positive experience (Jaffe *et al.*, 2015).

The CallWeb-based system used by the PI was secure and confidential as access to the data was restricted to authorized users only and was kept password protected under multiple levels of password protection. When data were transmitted electronically between authorized Malatest staff and the PI, these were encrypted to ensure privacy. Malatest is not subject to the US Patriot Act as it is a fully Canadian operated and owned business. All staff at Malatest must

sign a confidentiality agreement upon employment with the organization, and the Victoria Malatest office has Top Secret Facility Clearance from The Canadian and International Industrial Security Directorate (CIISD). Just as the web-based data were encrypted and password protected, physical copies of the data were protected with multiple forms of security including being kept in locked rooms or locked filing cabinets. Upon completion of data collection, authorized Malatest staff delivered all the collected data in SPSS and text files to the PI and destroyed all electronic copies of the data, and destroyed any paper copies of participant data using a secure shredding service.

The PI issued a unique access code (a unique string of numbers generated by the computer which ensured participants' confidentiality) to each participant who volunteered for the study. The participant used the unique access code to access the confidential web-based survey. Participants only had access to their own survey and were not able to view other participant's responses. The PI informed participants that survey completion was completely voluntary, and that they could choose to stop the survey or withdraw from the study at anytime. Participants were asked to complete the survey within two weeks of entering the study. Participants were able to save their responses and return to the survey over the two-week period they were requested to complete the survey in. Allowing the participants to complete the survey at their own pace limited the risk of fatigue, and allowed participants to modulate any distress they might have experienced at any one time. Both fatigue and distress could have impacted data quality.

If a participant had not completed the survey after two weeks, the PI reminded the participant two days after the deadline had passed and then one final reminder was given after two more weeks had passed. Once the survey was submitted by the participants, they received an automatically generated response from the PI thanking them for their participation in the

study. Two participants requested to complete the survey using a “pencil and paper” format over the web-based assessment and the PI mailed these two participants the survey along with preaddressed and stamped return envelopes. Once the paper based surveys were returned, the responses were entered into the electronic survey and the paper copies of the participant’s responses were destroyed.

### **Data Collection Procedure for the Comparison group**

In Fall 2014, under the supervision of the PI, a graduate student, whose thesis served as the second arm to the PI’s larger research program, collected the comparison group data. Again, a web-based survey was selected as web-based surveys offer a faster and less expensive alternative to other modes of assessment (Heiervang & Goodman, 2011). *FluidSurveys*<sup>TM</sup> was chosen because, like Malatest, it uses a Canadian server and is therefore not subject to the US Patriot Act. The survey data were password protected and only the PI and her graduate student had access to the data.

Participants who volunteered for the comparison study were similarly issued unique access codes with which to access the survey anonymously. Again, the participants only had access to their own responses and were not able to see other participants’ responses. Participants were able save their responses and return to the survey at anytime, however they were asked to complete the survey by the end of December 2014. If a participant had expressed interest in participating but had not complete the survey they were sent one email reminder. Once the survey was completed participants were sent thank you messages through email.

### **Instrumentation for the Comparison Study**

The Murder Group and the Comparison Group participants provided responses to a battery of seven scales, including two validated and five non-validated scales assessing

demographics, well-being, health, distress, and life experiences. In order, participants in both groups completed the following questionnaires and scales:

1. Demographic and Background Information questionnaire
2. Social Support scale
3. Health Status questionnaire
4. Self-Worth scale
5. Looking Back Across My Childhood questionnaire
6. Impact of Event Scale-Revised (IES-R)
7. Satisfaction With Life (SWL) scale

When a validated scale could be found it was used, in situations where no validated scale existed, the primary investigator created a scale. The IES-R (Horowitz, Wilner, & Alvarez, 1979; Weiss & Marmar, 1997) and the SWL scale (Diener, 2002; Diener, Emmons, Larsen, & Griffin, 1985) were the only two validated scales.

The PI consulted with the relevant research literature and sought out expert opinion when developing the Demographics and Background Information questionnaire. For example, she consulted with subject area experts including victim support group facilitators, representatives of victim policy groups, and individuals from homicide investigation teams. As such, the items created for the larger research program were tailored to those who have experienced homicide bereavement. The scales used to collect data in the Murder Group were slightly modified for the Comparison Group. While making every effort possible to preserve the integrity of the original questionnaires, the PI and her thesis student modified items and instructions on the questionnaires so that they would be applicable to the Comparison Group. For example, instead of being prompted to respond to the IES-R “with respect to the fact that your sibling was

murdered”, the participants in the Comparison Group were asked to respond to the IES-R “with respect to the most particularly challenging experience from your childhood or young adult years”.

### **The Present Study: Instrumentation and Data Analyses**

For the present study, my thesis research, I used only the data collected from both groups on the non-validated Demographic and Background Information questionnaire (#1 above), and the IES-R (Weiss & Marmar, 1997; Weiss, 2007; #6 above).

**Demographic and Background Information questionnaire.** The Demographic and Background Information questionnaire, constructed by the PI for her program of research, contained 25 items. The items were aimed at gathering a range of information including basic demographic information (e.g., age, language, education, income), and information related to the homicide and its impact on the participant and family. For example, participants were asked to provide information about their relationship status prior to the murder, at the time of the murder, and after the murder. As such, the demographic and background information questionnaire was used to gather demographic data and other information, related to the murder itself and to the experience of participants, from before, during, and after the murder.

**Impact of Event Scale-Revised (IES-R).** The IES-R is a 22-item self-report measure of subjective distress following potentially traumatic events (Horowitz et al., 1979; Weiss, 2004, 2007; Weiss & Marmar, 1997). Horowitz and colleagues developed the original 15-item scale in 1979 as a measure of subjective distress following a life event. The original IES contained two subscales measuring avoidance and intrusion (Horowitz, Wilner, & Alvarez, 1979). Weiss and Marmar (1997) later revised the IES adding a hyperarousal subscale. The most recent version of the IES-R, and the one used in the present study, contains 22 items rated on a 5-point scale,

ranging from 0 (*not at all*) to 4 (*extremely*), yielding a total score ranging from 0 to 88.

According to Wagner and Walters (2014), the goal of the latest revision to the scale was to have the IES align more closely with the-then three clusters of symptoms of Post Traumatic Stress Disorder (PTSD), as defined by the fourth addition of the Diagnostics Statistics Manual (DSM-IV; American Psychiatric Association, 2000). Thus, in addition to avoidance and intrusion, the scale was modified to include symptoms of hyperarousal, as hyperarousal was a new criterion of PTSD in the fourth edition of the DSM. The factor structure of the IES-R has yet to be validated; despite the fact that several researchers have found support for a three-factor solution (Beck et al., 2008; Brunet, St. Hillaire, Jehel, & King, 2003; Wagner, 2011; Wagner & Waters, 2014), still, others have found convincing evidence for four factor (Wang et al., 2011) and five-factor models (Morina et al., 2010). To the best of my knowledge the factor structure of the IES-R has never been explored with a sample of homicidally bereaved siblings.

Although the IES-R is a measure of subjective distress, it is widely used as a measure of Post Traumatic Stress Symptomology (PTSS). The IES-R has been used to assess subjective response to potentially traumatic events in more than 1,147 published studies (Weiss, 2007). The IES-R has been translated into several languages including, Arabic (Veronese & Pepe, 2013), Swahili (Mels, Derluyn, Broekaert, & Rosseel, 2010), and Japanese (Asukai et al., 2002). The IES-R demonstrates good psychometric properties. The IES-R has good internal consistency, with Cronbach's alphas between .79 and .94 (Creamer et al., 2003). Weiss and Marmar (1997) reported strong test-retest reliability of between .89–.94. Creamer and colleagues (2003) reported that the IES-R demonstrated good construct and convergent validity, as it is highly correlated (.84) with the PTSD Checklist (PCL). Further support for construct

validity of the IES-R is the consistent and high correlations found between the total scores and subscale scores (between .89-.94) (Rash, Coffey, Baschnagel, Drobles, & Saladin, 2008).

In the interest of teasing apart and isolating the trauma and grief responses of homicide bereavement, participants in the Murder Group completed two iterations of the IES-R: once regarding the subjective distress from the event of murder as the cause of their sibling's death, and once regarding the subjective distress from the separation loss of their sibling. Thus, the first time completing the IES-R measured subjective distress from the murder in order to gauge the trauma response, while the second time of completing the IES-R measured subjective distress from the loss in order to yield an approximation of the grief response. The Comparison Group completed a single iteration of the IES-R. Participants in the Comparison Group were instructed to respond to each item on the IES-R while holding in mind their most distressing self-reported life event experienced as a child or in their early adult years. This yielded a measure of subjective distress in a sample of siblings from the general population.

The psychometric properties of the IES-R, including the Cronbach alphas, were assessed for the present study, and are summarized in Table 4.

Table 4

*Psychometric Properties of the IES-R in the Present Study*

Impact of Events Scale- Revised	Number of items	Subscale	Subscale	Item	Item	Item	Cronbach's $\alpha$
		$\mu$	<i>SD</i>	$\mu$	Min	Max	
<b>Murder</b>							
Intrusion	8	11.9	7.5	1.5	0.8	2.2	0.88
Avoidance	8	9.1	10	1.1	0.7	1.6	0.86
Hyperarousal	6	7.1	6.6	1.2	0.8	1.6	0.89
Total	22	28.1	19	1.3	0.7	2.2	0.94
<b>Loss</b>							
Intrusion	8	11.9	7.5	1.5	0.9	1.9	0.87
Avoidance	8	8.6	7.8	1.1	0.7	1.7	0.89
Hyperarousal	6	7.5	7.2	1.3	1	1.6	0.93
Total	22	28	19.1	1.3	0.7	1.9	0.94

**Data analysis.** The data collected on the IES-R from both groups were subjected to between group *t*-tests, within group *t*-tests, and an exploratory quantitative method involving calculating item difference scores.

Each participant in the Murder Group provided ratings for their current levels of subjective distress associated with the event of murder, conceptualized as subjective distress associated with the trauma of homicide loss; and ratings reflecting current subjective distress related to the loss itself, conceptualized as the subjective distress associated with the grief of homicide loss. Each participant in the Comparison Group provided ratings for current subjective

distress associated with their most distressing self-reported life event experienced as a child or in their early adult years. Scores were computed from participants' ratings on the IES-R. Scores gathered by the IES-R include three subscale scores (intrusion, avoidance, hyperarousal) and a total score reflecting overall current level of subjective distress. All analyses were performed using IBM Statistical Package for the Social Sciences (23).

Prior to analyses, the data were first cleaned and checked multiple times to minimize the risk of data entry error. There were data missing from the sample, which was not surprising as missing data are expected in large survey research (McKnight, McKnight, Sidani, & Figueredo, 2007). Several potential fixes for the missing data were considered including listwise deletion, mean imputation, multiple imputation, and maximum likelihood. Ultimately, as is recommended as best practice when considering fixes for missing data, the unique data set and its distinctive features were considered in order to determine what specific features of the data would dictate which fix to use (McKnight et al., 2007). After much consideration, a combination of listwise deletion and mean imputation were used. Thirteen participants were excluded from data analyses. Eleven participants did not complete any of the items on the IES-R (Murder), and two participants did not complete the IES-R (Loss), or completed less than 20% of the items. Statistical estimates of these participant's responses would likely have been inaccurate predictions based on too little data. The total nonresponse and partial nonresponse (Brick & Kalton, 1996) missing data from these 13 participants was fixed using listwise deletion. Despite the loss in sample size, listwise deletion was the best solution for this missing data. By excluding 13 participants from future analysis, the effective sample size was  $n = 54$ . There were still a small amount of data missing among the responses of the 54 remaining participants, however these were item nonresponse missing data (Brick & Kalton, 1996). The missing data

did not appear to be missing systematically across the two iterations of the IES-R for the Murder Group, and were determined by careful visual inspection to be Missing Completely at Random (MCAR; Rubin, 1976). The practice of using of visual inspection to look for systematic patterns in missing data is a practice supported by Dr. Valerie Gonzalez, a statistics professor, from the University of Victoria (personal communication, October, 15, 2011). For the first iteration of the IES-R (Murder) there were only 22 (< 1.9%) missing data points out of a possible 1,188 (54 participants x 22 items). For the IES-R (Loss), there were 19 (< 1.6%) missing data points. Since the proportion of missing data were so low in each sample, simple mean imputation was selected to fix this missing data. It should be noted that mean imputation carries risks as it can decrease standard error of the mean and therefore increase the chances of a Type 1 error (Cheema, 2014). However, the proportion of missing data was so small, in this case, below 2%, which greatly reduced this risk.

For Research Question 1, in order to explore if there was a significant difference in reported subjective distress between homicidally bereaved siblings and the comparison group, two one-tailed, 2-sample *t*-tests using standard  $p \leq 0.01$  were used. Murder Group total mean score on the IES-R (Murder) was compared against Comparison Group participants' mean score on the IES-R. Then, the Murder Group total mean score on the IES-R (Loss) was compared against Comparison Group participants' mean score on the IES-R. For the exploratory quantitative method used to answer Research Question 2, an item difference score for each participant was used to create a variable for the average item difference score across all participants for each of the 22 items of the IES-R. First, a difference score for each of the 22 items on the two iterations of the IES-R was calculated for each of the participants included in the analyses. Recall, the IES-R comprises three subscales; intrusion, avoidance, and

hyperarousal. The 22 items (described as “difficulties” by the authors) are each rated on a 5-point Likert scale from 0 (*not at all*) to 4 (*extremely*), assessing how distressing each difficulty has been for the respondent during the past seven days. Example items are, “pictures of it popped into my mind” (intrusion), “I tried not to think about it” (avoidance), “I felt watchful or on guard” (hyperarousal). Individual item difference scores were calculated by subtracting each participant’s item score on the IES-R (Loss) from their item score on the IES-R (Murder), across all 22 items. For example, if a participant rated the item, “Any reminder brought back feelings about it” as a 4 on the IES-R (Murder) iteration, and as a 3 on the IES-R (Loss), then this participant’s item difference score would equal 1. In total, 22 item difference scores were calculated and entered for each participant. Next, for each item, all participants’ item difference scores were summed and averaged to create an average item difference score across all of the items, and finally subjected to visual inspection.

After normality and kurtosis were calculated for all variables, one-tailed, 2-sample *t*-tests using standard  $p < .01$  were used to answer Research Questions 1 and 2. Pooled variances were utilized because the Murder Group and the Comparison Group had unequal sample sizes. For Question 3, after assumptions all were checked, two linear regression analyses, using standard *p*-value 0.05, were conducted to explore the relationships between trauma and time, and between grief and time, respectively. That is, these analyses were used to explore whether trauma, taken to be approximated by the total score measured on the IES-R (Murder), and grief, taken to be approximated by the total score on the IES-R (Loss), are correlates of time. Time was assessed by asking participants to respond to the following item, “When did the murder occur?”

## Chapter 3

### Results

In this chapter results are presented from hypothesis testing and exploratory analyses. Three research questions were derived to answer the overarching research question set out for this study, specifically: 1) Do levels of reported subjective distress differ between homicidally bereaved siblings and the comparison group? 2) Among homicidally-bereaved siblings, are subjective distress responses associated with the murder (i.e., event) and the loss of a sibling distinguishable as indexed by scores on the IES-R (Murder) and IES-R (Loss)? 3) Among homicidally-bereaved siblings, does time since the murder-loss of a sibling have a relationship with the level of subjective distress responses associated with the murder (i.e., event) and the loss of a sibling distinguishable as indexed by scores on the IES-R (Murder) and IES-R (Loss)?

As mentioned in Chapter 2, for data analysis, 13 participants were excluded from the Murder Group resulting in a reduced sample of 54 participants. In order to realign the matched Comparison Group, one random participant from the Comparison Group (of the same sex and within +/- 3 years of age) was removed for each excluded participant in the Murder Group. This resulted in samples sizes of  $n = 54$  (Murder Group) and  $n = 68$  (Comparison Group). This method is a variation on re-weighting (Puma, Olsen, Bell & Price, 2009), a technique used to ward off potential bias from dissimilar missing data mechanisms. If the mechanism behind the missing data was different for the two groups, differences between the groups could be attributable to the unknown missing data mechanism and not the treatment, and therefore the groups needed to be re-balanced (Puma et al, 2009). This same procedure was followed for all subsequent analyses involving comparisons with the Comparison Group. Results are reported below for each of the three research questions.

**Research Question 1: Do levels of reported subjective distress differ between homicidally bereaved siblings and the comparison group?**

Research question 1 was divided into two questions, Question 1A and Question 1B. One hypothesis was derived and tested for each of the two questions.

**Question 1A: Are the Murder Group's *event*-related IES-R (Murder) scores distinguishable from the Comparison Group's IES-R scores?**

**Hypothesis 1A:** The Murder Group will report a significantly higher total mean IES-R (Murder) score compared to the total IES-R score for the Comparison Group.

**Hypothesis 1A was supported.** One-tailed, 2-sample *t*-tests using  $p \leq 0.01$  was used to test hypothesis 1A. Murder Group total mean score on the IES-R (Murder) was compared against Comparison Group participants' mean score on the IES-R. Results indicated a significant difference between the IES-R scores for the Murder Group ( $M = 28.09$ ,  $SD = 18.97$ ) and the Comparison Group ( $M = 10.94$ ,  $SD = 12.74$ ),  $t(120) = -5.95$ ,  $p = .001$ . Cohen's *d* was also large ( $d = 1.06$ ).

**Question 1B: Are the Murder Group's *loss*-related IES-R (Loss) scores distinguishable from the Comparison Group's IES-R scores?**

**Hypothesis 1B:** The Murder Group will report a significantly higher total mean IES-R (Loss) score compared to the total IES-R score for the Comparison Group.

**Hypothesis 1B was supported.** One-tailed, 2-sample *t*-tests using  $p \leq 0.01$  was used to test hypothesis 1B. Murder Group total mean score on the IES-R (Loss) was compared against Comparison Group participants' total mean score on the IES-R. Results indicated a significant difference between the Murder Group's total mean score for subjective distress in response to the loss of a sibling ( $M = 27.97$ ,  $SD = 19.06$ ), and the Comparison Group's total mean score for

subjective distress in relation to a self-reported adverse life event ( $M = 10.94$ ,  $SD = 12.74$ ),  $t(120) = -5.90$ ,  $p = .001$ . Cohen's  $d$  was again large ( $d = 1.05$ ).

**Research Question 2: Among homicidally-bereaved siblings, are subjective distress responses associated with the murder (i.e., event) and the loss of a sibling distinguishable as indexed by scores on the IES-R (Murder) and IES-R (Loss)?**

Three hypotheses were derived and tested to answer Research Question 2:

**Hypothesis 2A:** There will be a significant difference between the total mean scores on the IES-R (Murder) and total mean scores on the IES-R (Loss) reported by the Murder Group.

**Hypothesis 2B:** Within the Murder Group, an exploratory quantitative analyses of item difference scores will reveal one or more item comparison differences across the 22 items of the IES-R (Murder) and IES-R (Loss), as indicated by average item difference scores.

**Hypothesis 2C:** Within the Murder Group, an exploratory quantitative analyses of item difference scores will reveal systematic differences among average item difference scores across the 22 IES-R items divided by subscale (i.e., Intrusion, Avoidance, and Hyperarousal).

**Hypothesis 2A was not supported.** Trauma distress, as indexed by the total score measured on the IES-R (Murder), and loss distress, as indexed by total score measured on the IES-R (Loss), were highly and significantly correlated,  $r = .91$ ,  $p = .001$ . A paired samples  $t$ -test between the two iterations of the IES-R revealed that the total mean scores on the IES-R (Murder) ( $M = 28.1$ ,  $SD = 19.0$ ) and IES-R (Loss) ( $M = 28.0$ ,  $SD = 19.1$ ), did not differ significantly,  $t(53) = .10$ ,  $p = .920$ ,  $d = 0.01$ .

In order to get a more fine-grained picture of the possible differences among the subscales of the IES-R (Murder) and the IES-R (Loss), within-group unpaired  $t$ -tests comparing

the three subscale scores were run. No statistically significant differences were found ( $p \leq 0.01$ ) for any of the three comparisons, see Table 5 for the results from these comparisons.

Table 5

*Subscale Comparisons of the IES-R (Murder) and IES-R (Loss)*

Subscales of the IES-R	Murder Group ( $n = 54$ )		Comparison Group ( $n = 68$ )		Sig. $p^1$	Cohen's $d$
	$M$	$SD$	$M$	$SD$		
Intrusion	12.2	6.75	12.5	6.35	0.49	-0.01
Avoidance	9.1	6.18	8.86	6.88	0.63	0.06
Hyperarousal	7.61	6.31	7.86	6.67	0.59	-0.07

*Note.* The Impact of Event Scale Revised (IES-R; Weiss & Marmar, 1997) is a 22-item self-report measure of subjective distress in the past 7 days, using a 5-point Likert Scale (0 = not at all, 1 = a little bit, 2 = moderately, 3 = quite a bit, 4 = extremely)

<sup>1</sup> Bonferroni adjusted alpha levels of .002 for  $t$ -tests ( $p = .05/3$ ).

**Hypothesis 2B was supported.** In order to explore differences between responses on each of the 22 items on the IES-R (Murder) and IES-R (Loss) iterations of the IES-R, an exploratory quantitative analysis of item differences was employed. The present sample was not large enough to run a factor analysis. Further, conducting  $t$ -tests between each of the 22 items on the IES-R to look for differences would have dramatically inflated the chances of producing a Type 1 error. Therefore, a simple exploratory analysis was conducted to explore whether or not the IES-R could differentiate between subjective distress from the murder (i.e., trauma) and

subjective distress from the loss (i.e., grief). An item difference score for each participant was used to create a variable for the average item difference score across all participants for each of the 22 items of the IES-R (see Chapter 2 for description of how average item difference scores were computed). Average item difference scores were then subjected to visual inspection.

Across the 22 items, graphed differences were observable between average item scores on 20 items of the two iterations of the IES-R. Two items revealed a zero average item difference score, one item from the hyperarousal subscale, “I was jumpy and easily startled”, and one item from the intrusion subscale, “Other things kept making me think about it”. Average item difference scores were small, range = 0-0.3, or a third of a point. (See Figure 1.)

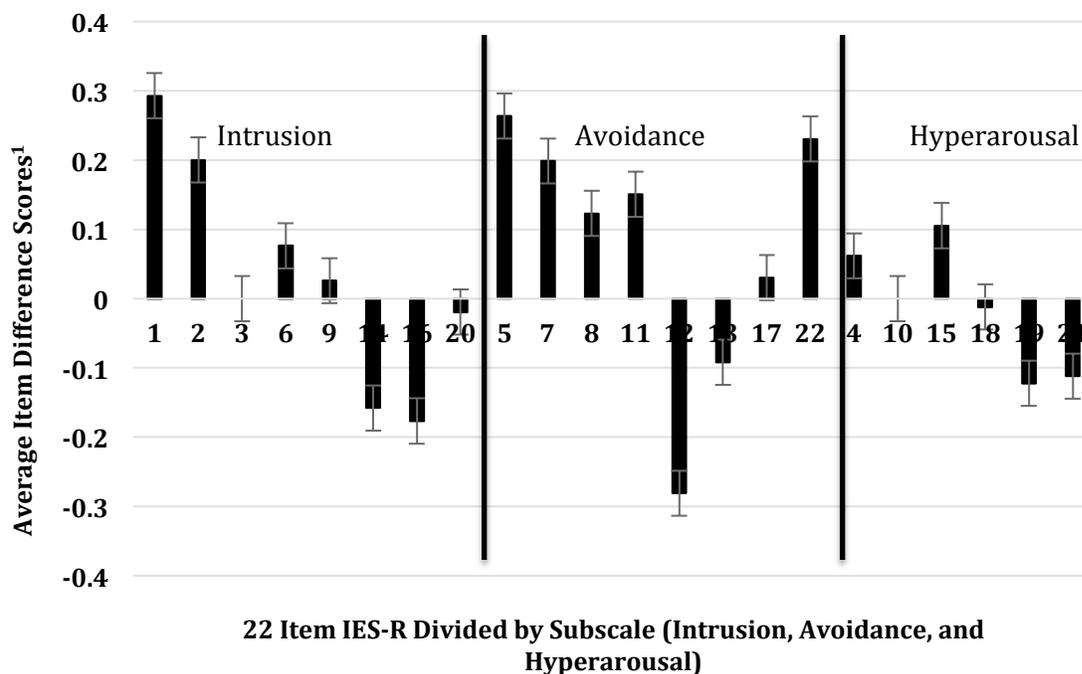


Figure 1. Average Item Difference Scores Grouped by Subscale on the IES-R.

In regards to Figure 1, if an average item difference score is above the zero line, it indicates that on average, participants scored higher on this item for the first iteration, the IES-R (Murder). However, if the bar drops below the zero line that means that participants scored

higher on average on that item for the second iteration of the IES-R (Loss). Average Item Difference Score is the average of the item difference scores calculated for each participant on each item (i.e., for each item, the average item difference score represents the average of 54 item difference scores). Overall, subjective distress associated with the event of murder was higher on 12 of the 20 items that showed a difference in average item difference score between the two iterations. That is, 60% of the item difference scores indicated greater levels of subjective distress were attributable to murder as the cause of a sibling's death.

**Hypothesis 2C was partially supported.** Systematic differences in average item difference scores were evident to the naked eye when the items were broken down and grouped by subscale. As is visually apparent on Figure 1, all three subscales contained items which were rated more highly on the IES-R (Murder), and items which were rated more highly on the IES-R (Loss). The two items with the largest difference on the intrusion subscale were above the zero line, meaning those items loaded more heavily onto trauma. In contrast, the two items with the largest difference on the hyperarousal subscale were below the zero line and therefore loaded more heavily onto loss. Finally, the two items with the largest difference on the avoidance subscale were split, as one item loaded more heavily onto trauma and the other onto loss.

**Research Question 3: Among homicidally-bereaved siblings, does time since the murder-loss of a sibling have a relationship with the level of subjective distress responses associated with the murder (i.e., event) and the loss of a sibling, as indexed by scores on the IES-R (Murder) and IES-R (Loss)?**

Can the length of time since the murder occurred distinguish between subjective distress related to the event (i.e., murder) and the loss as measured by the IES-R (Murder) and IES-R (Loss)? Recall, the IES-R (Murder) served as a proxy to assess subjective distress in relation to

the trauma component of homicide bereavement, and the IES-R (Loss), as the proxy to assess subjective distress in relation to the grief component of homicide bereavement. In order to test whether subjective distress from the murder or the loss has a relationship with time, after checking to ensure the data met the assumptions, two separate simple linear regressions were conducted. The standard  $p$ -value of 0.05 was used for these regressions as they were exploratory analyses. Separate analyses were conducted because the total mean scores for the IES-R (Murder) and the IES-R (Loss), were highly correlated;  $r(52) = .91, p = .001$ . Thus, using  $r^2$ , the coefficient of variability, the overlap between the variability of the IES-R (Murder) and IES-R (Loss) total mean scores accounted for at least 83% of the variability in the data. This suggests that trauma and grief overlapped by approximately 83% in this sample of homicidally bereaved siblings.

Time since the murder significantly predicted sibling's total score on the IES-R (Murder),  $\beta = -.48, t(53) = -2.79, p = .007$ . Meaning, on average, the longer it had been since the murder, the lower the sibling's total score on the IES-R (Murder) was likely to have been. Time since the murder also explained a significant proportion of the variance in IES-R (Murder) total scores,  $R^2 = .13, F(1,53) = 7.77, p = .007$ . Meaning 13% of the variability in sibling's total scores on the IES-R (Murder) could be explained by the length of time since the murder.

Time since the murder also significantly predicted sibling's score on the IES-R (Loss),  $\beta = -.320, t(53) = -2.43, p = .019$ , and explained a statistically significant proportion of the variance in IES-R (Loss) total scores;  $R^2 = .102, F(1,53) = 5.91, p = .019$ . Meaning, on average, the more time had passed since their sibling's murder, the more likely a sibling was to have a lower total score on the IES-R (Loss). It appeared therefore, that time accounted for 10% of the variability in sibling's total scores on the IES-R (Loss). Tables 6 and 7 below provide

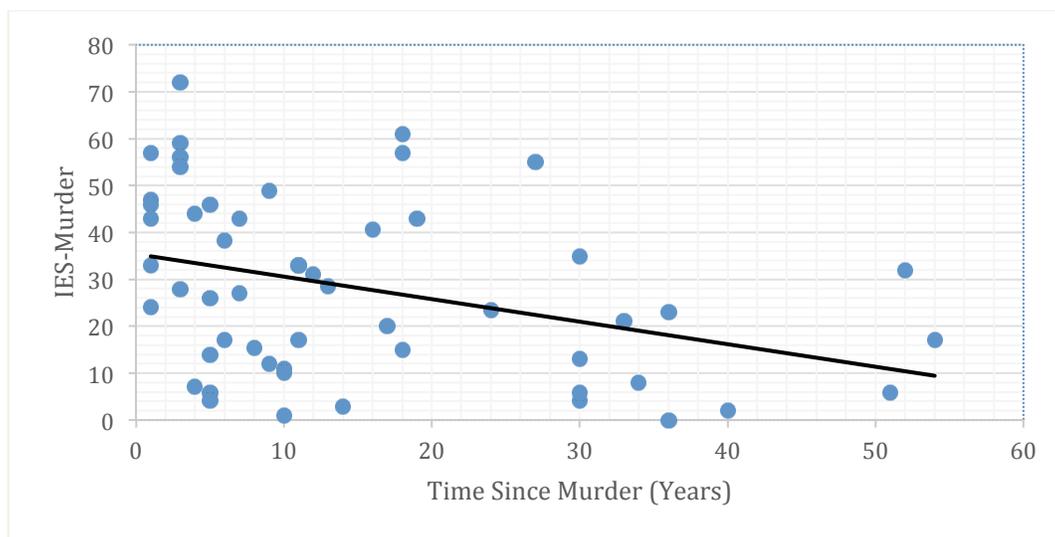
information about the coefficients of the variables from the two regression analyses. Figures 2 and 3 also provide a visual of the relationship between time and subjective distress as measured by the two iterations of the IES-R (Murder and Loss).

Table 6

*Coefficients Variables Resulting from Linear Regression Analysis Time and Subjective Distress from the Trauma of Losing a Sibling to Homicide, as indexed by the IES-R (Murder)*

	Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for $B$	
	$B$	Std. Error	Beta	$t$	Sig.	Lower Bound	Upper Bound
Constant	35.39	3.58		9.9	0.000	28.22	42.57
IES-R (Murder)	-0.48	0.17	-0.36	-2.787	0.007	-0.83	-0.14

*Note:* Dependent variable is number of years since the murder.



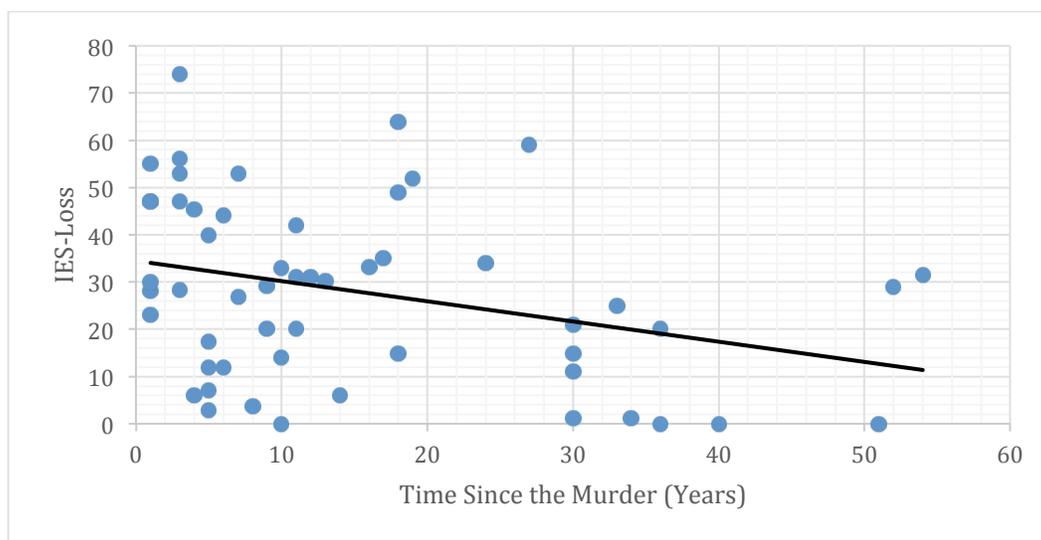
*Figure 2.* Scatterplot of murder distress as measured on the IES-R (Murder) over time.

Table 7

*Coefficients Variables Resulting from Linear Regression Analysis Time and Subjective Distress from the Grief of Losing a Sibling to Homicide, as indexed by the IES-R (Loss)*

	Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for <i>B</i>	
	<i>B</i>	Std. Error	Beta	<i>t</i>	Sig.	Lower Bound	Upper Bound
Constant	34.5	3.65		9.45	0.00	27.16	41.8
IES-R (Loss)	0.43	0.18	-0.32	-2.43	0.019	-0.78	-0.075

*Note:* Dependent variable is number of years since the murder.



*Figure 3.* Scatterplot of loss distress as measured on the IES-R (Loss) over time.

## Summary

In summary, hypotheses 1A and 1B were supported as the Murder Group's total mean scores on the IES-R (Murder) and the IES-R (Loss) both differed from the Comparison Group's

total mean IES-R score. Hypothesis 2A was not supported as the IES-R (Murder) and the IES-R (Loss) were highly and significantly correlated and were not significantly different. Hypothesis 2B was supported as the exploratory analysis of item differences revealed item differences between the IES-R (Murder) and IES-R (Loss). Hypothesis 2C was partially supported as small systematic differences were found between the subscales of IES-R (Murder) and IES-R (Loss). Finally, Research Question 3 revealed that time had a significant relationship with both subjective distress as measured by the IES-R (Murder) and IES-R (Loss), as both decreased overtime (years) and at similar rates.

## Chapter 4

### Discussion

The primary purpose of this study was an exploration of the overlap, and possible synergy, between trauma and grief in traumatic grief, using a sample of homicidally bereaved siblings. Investigations of the intersections between trauma and grief have been reported over the past two decades (e.g., Eth & Pynoos, 1994; Green et al., 2001; Kaltman & Bonanno, 2003), and the synergy between trauma and grief is a widely accepted theory (Armour, 2006; Malinga-Musamba & Maundeni, 2015; Neria & Litz, 2004; Rynearson & McCreery, 1993). Synergy is an important concept worthy of critical and systematic study because some believe the synergy between trauma and grief prolongs the distress associated with traumatic grief (Armour, 2006). Furthermore, information about how to understand, support, and treat individuals experiencing concurrent trauma and grief is sorely lacking (Rando, 2015). To explore the overlap and possible synergy between trauma and grief, I analyzed the subjective distress of losing a sibling to homicide. Recall, synergy refers to the interaction between trauma and grief producing a combined distress greater than the sum of each individual effect and overlap refers to the co-occurrence of trauma and grief. By definition, homicide bereavement involves the reliably intertwined experience of trauma and grief (Green, 2000; Niemeyer & Burke, 2011; Rynearson & McCreery, 1993). The overarching research question for this study was: Are event and loss related subjective distress distinguishable among siblings bereaved by homicide, as measured on the IES-R?

By employing a cross-sectional, iterative survey design using group comparisons, I was able to empirically (a) compare homicide bereavement distress to subjective distress from adverse life events, (b) explore the overlap and synergy between trauma and grief in response to

the murder/loss of a sibling, and (c) explore the relationship between time and event- and loss-related subjective distress.

### **Summary and Discussion of Findings**

In this section, I discuss the findings from each research question and, when applicable, the hypotheses, situating the results in context with current research. I close with a discussion of the implications of the findings for counselling theory and practice and the strengths and limitations of the study.

#### **Summary of Hypothesis Testing for Research Question 1**

##### **Research Question 1: Do levels of reported subjective distress differ between homicidally bereaved siblings and the comparison group?**

Subjective distress from the trauma and loss of losing a sibling to murder were first compared to subjective distress from adverse life events using a comparison sample of siblings who had not experienced homicide bereavement. Participants in the Murder Group were given two iterations of the IES-R. For the first iteration, the participants were asked to report their level of subjective distress in the past 7 days on the 22 items IES-R with respect to that fact that their *brother or sister was murdered*. This first iteration was referred to as the IES-R (Murder) iteration, and served to index the subjective *trauma* distress of losing a sibling to murder. Then, participants in the Murder Group responded to the IES-R again, but this time with respect to the *loss of their brother or sister*. This second iteration, completed immediately after the first iteration, was referred to as the IES-R (Loss), and served as an index for subjective grief-related distress of losing a sibling to murder. In contrast, the participants in the Comparison Group were asked to respond to the IES-R once “with respect to the most particularly challenging experience from your childhood or young adult years”. The Comparison Group’s IES-R served an index for

subjective distress from challenging life experiences, other than homicide bereavement. Two hypotheses were derived and tested to answer Research Question 1.

***Hypothesis 1A: The Murder Group will report a significantly higher total mean IES-R (Murder) score compared to the total IES-R score for the Comparison Group.***

Hypothesis 1A was supported. The Murder Group's self-reported level of subjective distress from the trauma differed significantly from the Comparison Group's self-reported subjective distress regarding an adverse life event. While the Comparison Group participants had never experienced the death of a sibling (or anyone else) to murder, their lives were not without their challenges. The qualitative responses from the Comparison Group's survey indicated that they had experienced a wide variety of adverse life events including, but not limited to: sibling death (1), suicide of a family member (3), parental death (6), sexual assault (4), chronic stress or dysfunction in family home (12), family home burned in a fire (1), family violence (7), lack of money in the family home for basic necessities (2), abusive relationships, including being bullied (5), and severe accidents (6). The wide variety of potentially traumatic events experienced by the comparison group is unsurprising when one considers that 74% of Canadian women and 81% of Canadian men report experiencing at least one potentially traumatic event during the course of their lifetime (Stein, Walker, Hazen, & Forde, 1997). Of course, trauma exposure is not unique to Canadians as 89% of Americans report experiencing at least one potentially traumatic event during the course of their lifetime (Kilpatrick et al., 2013). Despite the fact that the Control Group had experienced a wide variety of distressing experiences, many of which were potentially traumatic, their level of reported distress was still statistically significantly lower than the Murder Group's level of reported subjective distress from the *trauma* of losing a sibling to

murder. The statistical difference between the Murder Group and the Comparison Group likely represents a potentially meaningful difference, as there was a large Cohen's  $d$  value.

It was unsurprising that subjective distress from the trauma reported by the Murder Group was significantly higher than subjective distress reported by the Comparison Group. Recall, beyond losing a loved one, people who have been bereaved by homicide are faced with features of their loved one's death that may be especially difficult, including the violent, sudden, interpersonal, and intentional nature of the death. Empirical evidence suggests that mourners are at higher risk for PTSD following violent (van Denderen et al., 2015) and sudden deaths (Breslau et al., 1998). Interpersonal traumas also do more harm to an individual's wellbeing (Gustafsson, et al., 2009; Krupnick et al., 2004). Furthermore, there are secondary victimizations associated with homicide bereavement (e.g., dissatisfaction with the criminal justice system, financial costs, news media), which complicate or amplify the subjective distress (Casey, 2011). Finally, siblings of homicide victims not only endure the traumatic loss of their sibling, but also may have to live with parents who are dealing with the own traumatic distress (Applebaum & Burns, 1991). All in all, homicide bereavement involves trauma.

Despite the statistically significant difference between the two groups, closer post-hoc inspection of the results indicated that, on average, both groups reported relatively low current levels of subjective distress. On average, participants in the Murder Group rated their current level of subjective distress from the murder across the 22 items of the IES-R at about  $M = 1.3$ . Recall, the 4-point scale ranges from 0-4, 0 = *not at all*, 1 = *a little bit*, 2 = *moderately*, 3 = *quite a bit*, and 4 = *extremely*. Therefore, an average score of  $M = 1.3$  indicates participants in the Murder Group were reporting distress between *a little bit* and *moderately* on any given item, as a group. Despite having experienced a wide range of distressing experiences, the average rating

across all items on the IES-R for the Comparison Group was  $M = 0.5$ , indicating average distress somewhere between *not at all* and *a little bit*. This finding indicates that the siblings in both the Comparison Group and the Murder Group were quite resilient, as a group. This finding also echoes previous research indicating the most common response to trauma is resilience (Bonanno, 2005).

**Hypothesis 1B: The Murder Group will report a significantly higher total mean IES-R (Loss) score compared to the total IES-R score for the Comparison Group.** Hypothesis 1B was supported. Many of the Comparison Group siblings noted deaths in their list of self-reported stressful, challenging, or distressing experiences; these included: the death of sibling (1), a father (4), mother (1), one or both grandparents (8), other family member (6), and close friend (3), and the suicides of a family member (3), and the suicide of a close friend (1). In other words, despite the fact that the Comparison Group sample had experienced bereavement, there was still a statistically significant difference between the level of distress as a function of loss reported by the Murder Group versus the level of distress reported by the Comparison Group. Again, the statistical difference between the Murder Group and the Comparison Group likely represents a meaningful difference, as there was a large Cohen's  $d$  value. This finding provides further empirical evidence to suggest that, on average, the subjective distress from the *loss* of a sibling to homicide is greater than that of other siblings in the general population.

In summary, notwithstanding the resilience of both groups, the findings from Question 1 provide some evidence that siblings bereaved by homicide are likely to experience higher current levels of subjective distress than similar-age siblings in the general population. This finding is consistent with the contention that the trauma and loss of losing of a sibling through murder is a

“particularly devastating type of loss to endure” (Neimeyer & Burke, 2011), thought to be beyond the scope of normal distressing life events (Currier et al., 2008).

### **Summary of Hypothesis Testing for Research Question 2**

**Research Question 2: Among homicidally-bereaved siblings, are subjective distress responses associated with the murder (i.e., event) and the loss of a sibling distinguishable as indexed by scores on the IES-R (Murder) and IES-R (Loss)?**

To answer this question, three hypotheses were derived and tested. The results from each of the three hypotheses tested are organized by hypothesis and listed below:

***Hypothesis 2A: There will be a significant within-group difference between total mean scores of the two iterations of the IES-R completed by the Murder Group; that is, there will be a significant difference between the total mean scores on the IES-R (Murder) vs. the IES-R (Loss) reported by the Murder Group.***

Hypothesis 2A was not supported. The single paired-samples *t*-test analysis revealed that the total mean scores for the iterations were not statistically different. Said another way, at face value the trauma and grief of homicide bereavement did not appear to be different. Further, trauma and grief as indexed by the IES-R were positively and significantly correlated, indicating that these two elements of homicide bereavement were highly intertwined within the sample and, therefore, difficult to distinguish. The high correlation,  $r = .91, p = .001$ , reflecting an 83% overlap between trauma and grief distress in the Murder Group was not surprising given the recent finding from Boelen and colleagues (2015), namely a .76 correlation between PTSD and PGD among a sample of 331 homicidally bereaved family members. Anecdotal clinical support for the intertwined nature of trauma and grief has also emerged (e.g., Wolfelt, 2014). After years of working as a clinician treating trauma and grief, Wolfelt began to view PTSD through a grief

lens and now contends that because PTSD is so entwined with grief, it should be reframed as a form of traumatic grief. The results from the present study lend empirical support to Wolfelt's view that trauma and grief appear to be highly interwoven.

**Hypothesis 2B: Within the Murder Group, exploratory quantitative analyses will reveal one or more item comparison differences across the 22 items of the IES-R (Murder) and IES-R (Loss).** Hypothesis 2B was supported. Exploratory quantitative analyses revealed item differences between the two iterations of the IES-R. Although tests of statistical significance were inappropriate, the findings from the exploratory analyses provide insight into the fine-grained differences between trauma and grief. The two items with the biggest item difference from each subscale (intrusion, avoidance, hyperarousal) are reported in Table 8 below. The item with the largest difference, *Any reminder brought back feelings about it*, was more associated with trauma. This may indicate that reminders of the murder-death of a sibling may trigger feelings more attributable to the trauma than the loss of homicide bereavement. The difference for the item with the next largest difference, *I was aware that I still had a lot of feelings about it, but I didn't want to deal with them*, was more associated with grief distress. This item pertains to feelings about the loss, and therefore highlights the tendency to avoid feelings associated with the loss. Interestingly, avoidance, along with emotional numbing and cognitive symptoms of trauma, has been identified as responsible for arresting or interfering with the grieving process (Boelen & Spuij, 2013). This beginning line of evidence, to me, suggests, albeit just a hint, that avoidance might underlie the synergistic nature of trauma and grief in response to the traumatic loss of a loved one through violent, sudden, intentional, or malicious means.

Table 8

*Item Difference Scores Divided by IES-R Subscales, Two Items With Largest Difference on Each*

*Subscale are Displayed*

Subscale	Item	Item Difference Scores
		Trauma/Grief
Intrusion	1. <i>Any reminder brought back feelings about it.</i>	0.29
	2. <i>I had trouble staying asleep.</i>	0.20
Avoidance	5. <i>I avoided letting myself get upset when I thought about it or was reminded of it.</i>	0.26
	12. <i>I was aware that I still had a lot of feelings about it, but I didn't want to deal with them.</i>	-0.28
Hyperarousal	19. <i>Reminders of it caused me to have physical reactions such as sweating, trouble breathing, nausea, or a pounding heart.</i>	-0.12
	21. <i>I felt watchful or on-guard.</i>	-0.11

*Note:* If an item difference score is positive it suggests it was rated more highly as a trauma related item. Similarly, if an item is negative it suggests it was rated more highly as a grief related item.

**Hypothesis 2C: Within the Murder Group, an exploratory quantitative analysis of item difference scores will reveal systematic differences in item difference scores across the 22 items across the three subscales of the IES-R (i.e., Intrusion, Avoidance, and Hyperarousal).** Hypothesis 2C was partially supported. The top two items from the intrusion subscale were rated higher on the IES-R (Murder) iteration than on the IES-R (Loss) iteration. Therefore, intrusion is the aspect of homicidal distress more likely to be associated with the traumatic event of murder, than the loss. On average the items *Any reminder brought back feelings about it* and *I had trouble staying asleep*, were more associated with the fact that a

sibling was murdered than they were to the loss of a sibling. A quote from a participant in the current study who was 26 years old at the time of her sibling's murder in 1999, captures both the struggle of intrusion symptoms and sleep difficulty following homicide bereavement: "In regards to sleeping, I am unable to sleep without the help of a sleeping aide. If I do not take something I bring myself right back to the murder and my mind races and I cannot sleep" (Participant 2FRS1). Intrusion symptoms are higher following violent loss when compared to trauma from a physical assault (Green et al., 2001). Further, the avoidance of thoughts, or thought suppression, only serves to *increase* traumatic intrusive thoughts (Rassin, Merckelbach, & Muris, 2001). Therefore, it is possible intrusion symptoms associated with violent loss may be partially related to avoidance symptoms. This not only supports the conceptualization of trauma and grief as highly intertwined, possibly synergistic, constructs following homicide bereavement; but also provides another hint that avoidance might underlie the synergistic relationship between trauma and grief.

Interestingly, when the items with the largest difference from each subscale were identified, the avoidance subscale was the only subscale to have one item rated higher on trauma and one item rated higher on grief. This exploratory finding is potentially illuminating because, trauma- and not grief-related avoidance, is typically held up as a reason why grief is prolonged when trauma and grief co-occur (Cohen et al., 2003; Nam, 2016). According to some researchers, the tasks associated with grief (e.g., accepting the reality of the death, fully experiencing the pain of the loss, and finding meaning in the loved one's death), cannot be accomplished because of the *avoidance* inherent to trauma (Cohen et al., 2003). These researchers argue that it is the avoidance of uncomfortable trauma symptoms (i.e., intrusion, hyperarousal) that prevents the bereaved from tolerating sustained thoughts of their loved one.

As a result, avoidance of trauma symptoms prevents, interrupts, or delays grieving.

Interestingly, Eisma and colleagues (2015) found that, even after controlling for PTSD symptoms, bereaved individuals were more likely to avoid reminders of their loss than seek out reminders. This research by Eisma's group provides some support for my speculation from the findings I am reporting here, that avoidance is common to *both* trauma and the grief. These same researchers also found that rumination was linked to higher avoidance behaviors, and went on to conceptualize rumination as an avoidance behavior. Rumination, they suggested, allows the bereaved to avoid accepting the reality of the death. Harper, O'Connor, and O'Carroll (2015) found that avoidance behaviors have a positive association with grief, and interpreted this to mean that the more avoidance behaviors an individual engages in, the more likely they are to be experiencing more intense grief. Avoidance during bereavement has been described as maladaptive, as it prevents emotional and conceptual processing (Boelen et al., 2006; Shear et al., 2011). In the current sample of bereaved siblings, avoidance appears to be common to both components of trauma and grief distress involved in homicide bereavement. It is therefore possible that the synergy between trauma and grief inherent in homicide bereavement may be a synergy of avoidance.

In addition to avoidance, trauma also involves approach behaviours; furthermore, there is an interaction between avoidance and approach behaviours. While there is an avoidance of trauma reminders, there is also an attentional bias towards feared stimuli (Harvey, Bryant, & Rapee, 1996). This interaction is thought to be a way to quickly identify and then avoid threatening stimuli (Onnis, Dadds, & Bryant, 2011). An attentional bias towards feared stimuli results in hyperarousal (also commonly termed hypervigilance), characterized by physical symptoms of increased arousal (e.g., increased heart rate, sweating) and behaviours (e.g., on-

guard or watchfulness). Surprisingly, both items on the hyperarousal subscale with the largest difference scores were endorsed as related to grief distress. This is surprising because hyperarousal is a symptom cluster of PTSD, but not even listed as a symptom of PCBD (by way of reminder, Persistent Complex Bereavement Disorder; DSM-V, APA, 2014). The items, *Reminders of it caused me to have physical reactions such as sweating, trouble breathing, nausea, or a pounding heart* and *I felt watchful or on-guard*, were rated by the siblings as related more to the *loss* of their sibling than to the event of murder and its aftermath. Grief is stressful and associations have been found between acute grief and hyperarousal, including increased heart rate (Buckley et al., 2012), and high blood pressure (Buckley et al., 2011). While the following quote refers to hyperarousal in response to the event of murder as the cause of her brother's death, not to the loss of her brother, it captures the experience of hyperarousal in homicide bereavement. The quote comes from a participant in the current study, who was 10 years old at the time of her brother's murder in 1995:

The most difficult time that I have in relation to his death is at night. He was murdered at night and sometimes when I hear noises at night it makes me jumpy. I find myself many times waking up and going to check on my daughter (2.5 years). We have an alarm system but it doesn't always help me. (Participant 3RXJS1)

A recent study provides support for the association between grief and hyperarousal, as indicated by findings on levels of catecholamines (epinephrine, norepinephrine, and dopamine), which are neurotransmitters and hormones released during distress (O'Connor et al., 2013). Unfortunately, the means by which the participants ( $N = 16$ ; 14 female, 2 male) in the study were bereaved (i.e., natural versus unnatural) was not reported by the authors. Nonetheless, the researchers found that participants with the highest levels of catecholamines, assessed through

blood samples at the beginning of psychotherapy, had the highest levels of complicated grief post psychotherapy. Therefore, this evidence supports the self-report data from the current study indicating that hyperarousal is *also* related to grief.

Taken together, exploratory conclusions from testing and retaining Hypothesis 2B, suggest homicide bereavement involves a synergy of subjective distress in response to the event and the loss, and that this synergy is underpinned by avoidance. Again, the findings I am reporting from my thesis-study are exploratory and must be interpreted with caution. Further research is needed to confirm these exploratory findings, and further study of avoidance in homicide bereavement is needed.

### **Summary of Findings from Research Question 3**

**Research Question 3: Among homicidally-bereaved siblings, does time since the murder-loss of a sibling have a relationship with the level of subjective distress responses associated with the murder (i.e., event) and the loss of a sibling, as indexed by scores on the IES-R (Murder) and IES-R (Loss)?**

I did not derive or test a hypothesis for Question 3 because I used this question to explore the data for any evidence of a relationship between time and the components of trauma and grief in homicide bereavement. To do this, I ran two separate simple linear regressions. The result from both linear regressions showed that indeed time was a correlate of both trauma and grief in homicide bereavement. Over the years from when the murder occurred, both subjective trauma-distress and subjective loss-distress showed a statistically significant decrease. Visual inspection of the scatterplots in Figures 2 and 3 reveal remarkably similar trajectories for subjective trauma-distress and loss-distress over time. This indicates that both subjective distress from the trauma and the loss appear to not only decrease overtime, but perhaps at similar rates too. A quote

provided by a study participant, who was 25 years old when her brother was killed in 2006, illustrates the decrease in subjective distress response to the murder as the cause of her brother's death, over time. At the end of her IES-R (Murder) questionnaire, the participant wrote:

A lot of time has passed since my brother was killed. These questions all say in the last 7 days, and I can say my emotional health has improved drastically since the months right after the murder. My answers to these questions would have been different then.

(Participant 3RFRS1)

Similarly, another quote from a participant who was 23 when her sister died in 2005, captures the decrease in subjective distress from the loss over time. In this case, in the space provided for participants at the end the IES-R (Loss) questionnaire, this participant wrote: "i think about her every day. I would have answered extremely to all of these questions a few years ago, but it has been five years now." [Participant 2CNS1].

This finding does not support the notion that trauma interferes with the healing from grief in a simplistic or unidirectional manner. This belief posits that trauma interferes with grief in a unidirectional way, and is the reason why concurrent trauma and grief sometimes results in PGD or complicated grief (Cohen et al., 2003, Cohen et al., 2006; Pynoos, 1992). The implication being that grief would progress normally if it were not for the trauma complicating and prolonging the grief. The rationale is that PTSD symptoms are thought to interfere with an individual's ability to grieve the loss of a loved one (Cohen, et al., 2003). This belief says nothing about grief influencing trauma, nor about the existence of a complex relationship between trauma and grief. In fact, Applebaum and Burns (1991), and Rynearson and McCreery (1993), both suggested that trauma distress is responsible for preventing the processing of the grief response in homicide bereavement. In writing about trauma and grief in children bereaved

through a violent death, Eth and Pynoos (1985, p. 171) wrote, “an arrest of normal mourning may occur when insufficient therapeutic attention is paid to relieving traumatic anxiety”. In sum, if trauma, in fact, does impede processing from grief in a unidirectional manner, then we would expect to find trauma distress decreasing and grief distress either remaining steady or decreasing at a slower rate than trauma. This is not what I found.

### **Post-hoc Analyses and Findings**

As noted earlier, the IES-R has been used in academic research studies as a measure of traumatic distress, and some researchers have even suggested a diagnostic cut off score on the IES-R for the diagnosis of PTSD (e.g., Creamer et al., 2003). This is surprising given that this scale was developed by the author as “a measure of subjective distress” (Horowitz, et al., 1979), not trauma. Nonetheless, Creamer and his colleagues (2003) claimed that a total score of 33 or above provides diagnostic accuracy for PTSD. Given that the IES-R is widely used empirically as a measure of traumatic stress, and as a screen for PTSD, I thought it appropriate to investigate the proportion of the siblings bereaved by homicide who would meet the cut-off score for PTSD, given Creamer and colleagues suggested score. Based on Creamer and his colleagues cut-off score, with respect to that fact that their *brother or sister was murdered*, 41% of the siblings bereaved by homicide in this sample scored either at or above a cut-off score of 33 on the IES-R for a PTSD diagnosis. A rate of 41% falls within the lower to middle of the expected range for this population according to a recent systematic review of psychopathology among homicidally bereaved that found PTSD rates varied from 19.1 to 71% across 8 studies (van Denderen et al., 2015). In contrast, when the Comparison Group scores on the IES-R were analyzed using Creamer and his colleagues’ cut-off score of 33, just 7% of that sample met the ‘diagnostic’ cut-off for PTSD. This rate of 7% PTSD is just below the lifetime prevalence estimates for PTSD in

Canada of 9% (Van Ameringen, Mancini, Patterson, & Boyle, 2008), and America of 8.7% (DSM-V, APA, 2014, p. 276). Therefore, 7% was within the lower to expected range for the Comparison Group.

However, when one thinks critically about the IES-R it is surprising that a cut-off score of 33 is sufficient to label someone with PTSD, especially when one considers that, as a group, average subjective distress levels for more than 70% of participants in the Murder Group, were between 0= *not at all* and 2= *moderately*. Please refer to Table 9 for a breakdown of the ratio (as a percent) of the Murder Group's scores on the IES-R (Murder), IES-R (Loss), and the Comparison Group's scores on the IES-R.

Table 9

*Participants (%) Mean Total Scores x Category of Scores on the IES-R*

Categories of Scores on the IES-R	Murder Group ( <i>n</i> = 54)		Comparison Group ( <i>n</i> = 68)
	% (Murder)	% (Loss)	%
0.0-1("not at all" to "a little bit")	48	41	54
1.1-2 (>"a little bit" to "moderately")	30	33	28
2.1-3 (> "moderately" to "quite a bit")	20	24	16
3.1-4 (> "quite a bit" to "extremely")	2	2	2

*Note.* The Impact of Event Scale Revised (IES-R; Weiss & Marmar, 1997) is a 22-item self-report measure of subjective distress in the past 7 days, using a 5-point Likert Scale (0 = not at all, 1 = a little bit, 2 = moderately, 3 = quite a bit, 4 = extremely)

Perhaps it is the case that Creamer and colleagues' suggested cut-off score overestimates the proportion of PTSD in a sample? However, we know the IES-R does not take into account

the unique experience of homicide bereavement because the IES-R was not developed for specific use with this population nor has it been validated with this population. Is it reasonable to suggest that the normal response to homicide bereavement may appear as psychopathology but is in fact a normal response to abnormal event? This suggestion is reminiscent of a quote from Viktor Frankl, who wrote, "an abnormal reaction to an abnormal situation is normal behavior" (1984, p. 38). More research is clearly needed to answer this question. Given the fact that PTSD is a relatively new diagnosis (APA, 1980), and that we have yet to establish the normal response to homicide bereavement, it seems prudent to withhold any further comments about psychopathology or proportion of PTSD in this sample.

### **Taking the Findings Together and a Possible Message About the Interaction of Trauma and Grief in Traumatic Bereavement**

Taking all the findings from my three research questions together, it seems that the answer to my overarching research question asking if event and loss related distress are distinguishable among siblings bereaved by homicide, is yes. The findings from Research Questions 1 and 2 reflect the overlap (e.g., Eth & Pynoos, 1994; Green et al., 2001; Kaltman & Bonanno, 2003), and the synergistic nature of grief and trauma in homicide bereavement as discussed by Armour (2006). Findings from Research Question 1 established that current levels of subjective distress among siblings of homicide victims appear to be distinguishable from that of general population siblings; subjective distress among siblings of homicide victims is likely to be elevated compared to that of general population siblings. Research Question 2 provided support for the intertwined nature of subjective distress from the trauma and grief of losing a sibling to murder, corroborating existing theoretical views and findings on the overlap and conjoint experience of trauma and grief in traumatic bereavement. Although intertwined, at a

fine-grained level, the IES-R was able to distinguish between subjective distress related to the trauma and grief components of homicide bereavement. Findings from Research Question 2 also yielded insight into the look and feel of subjective distress associated with homicide bereavement. Most particularly, findings gave some insight into the pattern of the avoidance, hyperarousal, and intrusion components of subjective distress in response to the traumatic event of murder, and to the death (i.e., loss) of a sibling. Finally, Research Question 3 afforded insight into the relationship of time with subjective distress as a function of trauma and of grief of homicide—both of which, decreased at similar rates over a period of years. In her 2015 article *Prolonged Grief: Setting the Research Agenda*, Rosner wrote that researchers need to start investigating the hypothesis “that PTSD needs to be treated first, as avoidance may impede the treatment of PGD”. One of my aims for my thesis, was to answer Rosner’s call for research related trauma and grief, by providing a systematic investigation of trauma and grief over time following homicide bereavement. Drawing on my findings, I suggest that trauma does not interfere with grief in a unidirectional manner. No discernable differences in total or subscales mean scores were found between trauma distress and grief distress, but differentials in items scores between the two iterations of the IES-R point to a synergy in subjective distress in response to the event and the loss underpinned by avoidance, and both trauma and grief-related distress appear to decrease evenly and simultaneously with time.

Overall, these findings about homicide bereavement may contribute generally to the theory and understanding of traumatic grief and bereavement. Most particularly, these results provide insight into the nature of trauma and grief as two separate but highly intermingled forms of subjective distress. Further, the post-hoc arguments made against pathologizing either trauma or grief distress following homicide bereavement likely generalize to other forms of traumatic

bereavement, including loss through accident or suicide as both may share the same sudden and violent characteristics of homicide death and therefore may put the bereaved at risk for being labeled 'abnormal'.

### **Strengths and Limitations of the Study**

A primary strength of this study was the samples. The sample of siblings bereaved by homicide, Murder Group, was, to the best of my knowledge, the largest of its kind ever collected in Canada ( $N = 67$ ), and possibly the largest homogenous sample of siblings of young homicide victims currently available. Homogenous meaning the siblings were not combined with homicidally bereaved family members such as parents, grandparents, aunts, or uncles. Therefore, the potentially unique experiences of siblings bereaved by homicide loss of a sibling were not lost to the noise of a heterogeneous sample of homicidally bereaved participants. The use of a comparison sample of siblings, the Comparison Group, matched with the Murder Group on sex and age, also added to the scientific rigor to the study by providing a contrast to the sample of siblings bereaved by homicide. Findings from the Murder Group were compared to a remarkably similar sample of siblings from the general population (Comparison Group), therefore providing assurance that differences between the two groups were likely attributable to the experience of homicide bereavement. The large sample size of both the Murder Group and Comparison Group ( $n = 80$ ) provided increased validity to the findings of the study.

The innovative study design was another significant strength of this study. The study employed two iterations of the IES-R in order to tease apart trauma and grief as two highly correlated elements of homicide bereavement. The IES-R (Weiss, 2007) is a well-validated scale of subjective distress to challenging life events with strong psychometric properties, therefore selecting this scale for the study added to the rigor of the investigation. This innovative

approach was not without limitations, but the approach provided the opportunity to gain a glimpse of the overlap and synergy between trauma and grief in traumatic grief using quantitative methods. In addition, the quantitative method used to compare item difference scores across the two iterations of the IES-R was original to this study, and provided a means of exploring the possible differences between event and loss-related subjective distress associated with homicide loss without requiring a larger sample size. In an ideal scenario, factor analysis would have been used to explore the factor loadings of the two iterations of the IES-R, once for trauma, and once for loss. However, the sample size, although the largest for a homogenous sample of siblings of young homicide victims to the best of my knowledge, did not permit this type of analysis. Using 22 *t*-tests across the all the items of the two iterations to explore for item differences would also have been inappropriate because this would have dramatically increased the chances of making a Type 1 error. Therefore, an original quantitative analysis using calculated difference scores across the two iterations of the IES-R was used, as this simple analysis did not violate any statistical assumptions. Administering a scale twice in a row (i.e., the iterative component of the study design), however, opens up questions about test-retest reliability. Theoretically, differences between the IES-R (Murder) and the IES-R (Loss) should be due only to differences between the trauma distress and grief distress inherent in homicide bereavement. However, it is possible that differences between the two iterations of the scales were due to measurement error. For example, it is possible that differences between the two scales could be partially attributable to a carryover effect (Jin & Wang, 2015). That is, filling out one scale triggers the participant to think or feel a certain way, and this impacts his or her answers on the next scale. Future studies or replications of this research may want to consider a counterbalanced design in which a portion of the participants fill out the IES-R (Murder) first

and the other portion fill out the IES-R (Loss) first, in order to mitigate the risk of a carryover effect.

Another strength of this study was the use of sibling as opposed to parent report of sibling's responses (e.g., Dickens, 2014). In this study, siblings were asked directly about their responses to the murder and given an opportunity to have a voice. Further, qualitative data were collected alongside the quantitative data, allowing participants to provide further explanation of their responses.

Both samples were self-selecting ones consisting of mostly sisters. Therefore, the sample was not gathered using probability sampling. Self-selected samples are generally considered a limitation because they limit the external validity of the study, and weaken the interpretation of results (Bethlehem, 2010). However, given the serious nature of the topic, having self-selected participants did provide some assurance that the participants in the Murder Group felt psychologically ready to participate in the research. Furthermore, in comparison to randomly selected participants, self-selected participants give higher quality responses, fewer missing responses, and provide longer answers (Walsh, Kiesler, Sproull, & Hesse, 1992).

Data were collected remotely through secure online servers. When compared to interviews, internet-based surveys provide faster access to more research participants, reduce measurement error and bias related to stigmatized topics, and improve ability to recruit participants from difficult to reach population groups (McCabe, 2004; McCabe, Boyd, Couper, Crawford, & d'Arcy, 2002; McCabe, Boyd, Young, & Crawford, 2004; Rhodes, Bowie, & Hergenrather, 2003; Schonlau, 2004). Regardless of the advantages of self-selected samples, future studies of siblings bereaved by homicide should aim to gather a random sample in order to increase external validity of the study and strengthen the interpretation of results. As mentioned

earlier, both the Murder Group and the Comparison Group samples contained more sisters, which should be considered when interpreting the results. While women are generally more willing to participate in survey studies than are men (Søgaard, Selmer, Bjertness, & Thelle, 2004), a 2016 study of homicide loss by Boelen and colleagues indicated that females may be at greater risk of PTSD and PGD than males following homicide loss. Therefore, findings from this study may not generalize as well to homicidally bereaved males, and findings should be interpreted with caution. Future studies should aim for an equal proportion of male and female participants in order to improve external validity of the findings.

Another potential limitation is that the Comparison Group was composed entirely of participants living in Canada, or at least who were living in Canada at the time of participation in the study. Potential differences between American and Canadian participants were a concern for composition of the Murder Group, hence the thorough comparison of Americans and Canadians before collapsing across those two groups. Very few differences were found between Americans and Canadians in the Murder Group, indicating that the two populations may not be as distinct as they might be assumed to be. However, it is unknown whether having an ostensibly Canadian comparison sample impacted the findings for Research Question 1.

Another limitation is the fact that we did not ask about culture in the demographic questionnaire. Grief and bereavement are culturally dependent (see Klass, 1999 for review), and therefore culture should be considered when grief is being studied. Ethnicity, for example, as one cultural factor, predicts higher levels of complicated grief in some samples (see Burke & Neimeyer for review 2012). For example, PGD is almost twice as prevalent in African American (22%) samples than in Caucasian samples (12%) (Goldsmith, Morrison, Vanderwerker, & Prigerson, 2008). In addition, the hallmark characteristics of grief may differ

with culture, as exemplified by the finding that avoidance symptoms following loss may not predict severity of grief among people from Cambodia (Hinton, Nickerson, & Bryant, 2013).

### **Implications for Counselling Theory and Practice**

The findings from hypotheses 1A and 1B lend support to the notion that subjective distress from both the trauma and loss components of homicide bereavement, is over and above the subjective distress from other adverse life events, including bereavement. Counsellors working with clients who have lost someone to murder need to be aware of the potential for homicide survivors to have higher levels of subjective distress than clients who have experienced other challenging, but more normative, types of adverse life events typical in the population. This finding echoes what Hatton (2003) found when she surveyed homicide bereavement counselling providers about their opinions of counselling interventions for homicidally bereaved clients. Hatton compared homicide bereavement counsellors who either had or had not experienced homicide bereavement themselves. She found that compared to counsellors who had not experienced homicide bereavement, homicidally bereaved counsellors rated both trauma and grief counselling as being significantly more helpful than other interventions (e.g., non-directive listening) for homicidally bereaved clients. Therefore, one can hypothesize that the counsellors who had themselves endured homicide bereavement understood that subjective distress from the trauma and grief are higher in this population, and therefore that clients who are homicidally bereaved require more focused counselling attention for both their trauma and grief-related distress.

Further to Hatton's (2003) suggestion that counsellors should not overlook the importance of interventions for either trauma or grief when providing counselling to those bereaved by homicide, the findings from hypothesis 2A provide a glimpse into the highly

intertwined nature of the subjective distress from trauma and grief following homicide loss—and to the implications thereof for counselling. Although the two components were highly (83%) and significantly correlated, the 17% difference carries important information for counsellors. Existing treatment models are based on the belief that trauma interferes with grief in a unidirectional way, and is the reason why some researchers have suggested and developed *sequential* therapies for working with people experiencing concurrent trauma and grief, focusing first on trauma and then on grief (e.g., Cohen et al., 2003, Cohen et al., 2006; Pynoos, 1992). This understanding of trauma interfering with grief in a unidirectional way, is also used to explain why concurrent trauma and grief sometimes results in PGD or complicated grief (Cohen et al., 2003, Cohen et al., 2006; Pynoos, 1992). In contrast recall Rosner’s 2015 call for more research questioning the sequential treatment of trauma first and grief second. Similarly, Rando (2015) attested that counsellors will do well to be aware of the subtle differences between trauma and grief distress.

Although findings from hypothesis 2B reveal only small differences, these small differences may have clinical implications for counsellors working with traumatically bereaved clients. Recall, avoidance was rated highly on both trauma and grief distress. The IES-R item *I avoided letting myself get upset when I thought about it or was reminded of it*, was rated higher for trauma than grief. On the other hand, the IES-R item, *I was aware that I still had a lot of feelings about it, but I didn’t want to deal with them* was rated higher for grief distress.

Therefore, counsellors should also focus on the feelings and emotions related to the loss of the loved one, not only or first (using the sequential model of traumatic grief counselling) on those related to murder and its aftermath. Counsellors working with this population will be supported by being aware that avoidance may prove to be a particularly challenging characteristic of the

subjective distress among homicide survivors. Counsellor education about the dual purpose avoidance serves in managing emotions stemming from both the trauma and the grief associated with homicidal loss, will facilitate this awareness.

Findings from Research Question 3 lend further support to Hatton's (2003) sentiment that counselling should focus simultaneously on the components of trauma and grief in homicide bereavement. The findings do not support sequentially focusing first on trauma and later on grief, as trauma and grief resolved over time at similar rates. The sequential approach may be too simplistic a therapy approach for something as complex and intertwined as trauma and grief following homicide bereavement. Grief symptoms including hyperarousal and avoidance likely have an impact on trauma symptoms, and therefore should not be put off or ignored until trauma symptoms are treated. Neglecting grief to focus only on trauma may neglect a large portion of the root distress, particularly among those bereaved by homicide. Therefore, clinicians may want to opt for therapies that address both trauma and grief concurrently, while remembering the distinctions between trauma and grief distress in homicide bereavement.

Findings from homicide bereavement might contribute to counselling practice more generally for other types of traumatic bereavement, as traumatic bereavement generally is known to contain elements of concurrent trauma and grief. However, more research of other forms of traumatic bereavement is needed, and therefore replication of this study with those bereaved by other traumatic means is recommended (e.g., suicide, accident).

### **Conclusion**

The purpose of this thesis-study was to examine if event and loss related distress was distinguishable among siblings bereaved by homicide, and to explore evidence for the theoretically suggested synergy between trauma and grief distress in traumatic bereavement.

Trauma and grief distress inherent to homicide bereavement appear to be highly interwoven elements, worthy of further inquiry. Findings provide direction for future research and have clinical applications for working with clients presenting with concurrent trauma and grief. My hope is that, in the future, there will be systematic studies of the synergy of trauma and grief in traumatic grief, and further research concerning the sequential approach to treatment. As an ancillary hope, I hope that findings from this study will (a) provide clinicians and siblings with a greater understanding of the level and complexity of trauma and grief following homicide bereavement; and (b) educate victim service workers and members of the criminal justice system who are involved with families, including siblings, following homicide. Furthermore, the current trend towards diagnosing pathological grief demands further study of homicidally bereaved individuals who appear to be especially at risk of receiving a diagnosis for PGD. I hope this research and future research will provide a voice for family member of homicide victims, particularly siblings, who have so much to teach us about trauma, grief, and resilience.

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## Appendix A

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### Impact of Events Scale

SOME PARTICIPANTS MAY FIND THE FOLLOWING SECTION DISTRESSING. TO REITERATE, ALL INFORMATION PROVIDED BY YOU ON THIS SURVEY WILL REMAIN CONFIDENTIAL, UNLESS (1) YOU WERE TO REPORT A CHILD OR VULNERABLE ADULT AT RISK OF ABUSE, (2) YOU WERE TO REPORT INTENT TO HARM YOURSELF OR OTHERS, OR (3) YOUR RECORDS WERE SUBPOENAED BY THE COURT. ALSO, ALL INFORMATION COLLECTED WILL BE KEPT IN A SECURE PLACE BY THE RESEARCHERS. FUTUREMORE, YOU CAN SAVE YOUR RESPONSES AND RETURN TO THEM AT A LATER DATE PRIOR TO SUBMITTING.

Please list one or more (up to five) experiences from your childhood (ages 0-25) that you found stressful, challenging, and/or upsetting. PLEASE DO NOT DESCRIBE THESE EXPERIENCES IN GREAT DETAIL (I.E. AVOID NAMES, PLACES, DATES, ETC. AND ONLY USE GENERAL TERMS).

Please attempt to complete the following section with these stressful experiences in mind. Below is a list of difficulties people sometimes have after stressful life events. Please read each of the 22 difficulties listed, and then indicate how distressing each difficulty has been for you **during the past seven days**.

With respect to the particularly challenging experiences from your childhood, how much were you distressed or bothered by the following difficulties in the **past seven days**?

Prompt	Not at all	A little bit	Moderately	Quite a bit	Extremely	Don't know/unsure
Any reminder brought back feelings about it.						
I had trouble staying asleep.						
Other things kept making me think about it.						
I felt irritable and angry.						
I avoided letting myself get upset when I thought about it or was reminded of it.						

With respect to the particularly challenging experiences from your childhood, how much were you distressed or bothered by the following difficulties in the **past seven days**?

Prompt	Not at all	A little bit	Moderately	Quite a bit	Extremely	Don't know/unsure
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I thought about it when I didn't mean to.						
I felt as if it hadn't happened or wasn't real.						
I stayed away from reminders about it.						
Pictures about it popped into my mind.						
I was jumpy or easily startled.						

With respect to the particularly challenging experiences from your childhood, how much were you distressed or bothered by the following difficulties in the **past seven days**?

Prompt	Not at all	A little bit	Moderately	Quite a bit	Extremely	Don't know/unsure
I tried not to think about it.						
I was aware that I still had a lot of feelings about it, but I didn't deal with them.						
My feelings about it were kind of numb.						
I found myself acting or feeling as though I was back in time.						
I had trouble falling asleep.						

With respect to the particularly challenging experiences from your childhood, how much were you distressed or bothered by the following difficulties in the **past seven days**?

Prompt	Not at all	A little bit	Moderately	Quite a bit	Extremely	Don't know/unsure
I had waves of strong feelings about it.						
I tried to remove it from my memory.						
I had trouble concentrating.						
Reminders of it caused me to have physical reactions such as sweating, trouble						

breathing, nausea, or a pounding heart.						
I had dreams about it.						

With respect to the particularly challenging experiences from your childhood, how much were you distressed or bothered by the following difficulties in the **past seven days?**

Prompt	Not at all	A little bit	Moderately	Quite a bit	Extremely	Don't know/unsure
I felt watchful or on-guard.						
I tried not to think about it.						

#### **Other comments**

Please feel free to detail any other thoughts, comments or feelings you may have experienced that you think we have not covered with this questionnaire or anything else that you would like us to know about your wellbeing as a child and/or adolescent.