

University of Memphis

University of Memphis Digital Commons

Electronic Theses and Dissertations

2021

Examining Bereavement-Related Needs and Outcomes Among Survivors of Sudden Loss: A Latent Profile Analysis

Jamison Scott Bottomley

Follow this and additional works at: <https://digitalcommons.memphis.edu/etd>

Recommended Citation

Bottomley, Jamison Scott, "Examining Bereavement-Related Needs and Outcomes Among Survivors of Sudden Loss: A Latent Profile Analysis" (2021). *Electronic Theses and Dissertations*. 2468.
<https://digitalcommons.memphis.edu/etd/2468>

This Dissertation is brought to you for free and open access by University of Memphis Digital Commons. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of University of Memphis Digital Commons. For more information, please contact khhgerty@memphis.edu.

EXAMINING BEREAVEMENT-RELATED NEEDS AND OUTCOMES AMONG
SURVIVORS OF SUDDEN LOSS: A LATENT PROFILE ANALYSIS

by

Jamison S. Bottomley

A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

Major: Clinical Psychology

The University of Memphis

August 2021

Abstract

The loss of a loved one due to sudden causes is a relatively common phenomenon, with nearly half of adults in the United States reporting at least one impactful unexpected loss of a close other in their lifetime. Although the majority of people who experience the death of a loved one will adjust without impairment, individuals who are confronted with the sudden loss of a loved one face a number of challenges that leave them vulnerable to mental health and grief-related complications (e.g., complicated grief, PTSD, mood and anxiety-related disorders, suicide risk, feelings of guilt and shame). Given the panoply of challenges associated with losing a loved one to sudden causes, recognizing important bereavement-related needs among this population is a critical task as needs may reflect modifiable grief-related variables that can assist with post-loss adjustment. Using a person-centered approach, this study sought to (a) identify distinct patterns (latent classes) of bereavement-related needs among survivors of sudden loss, (b) assess individual, relational, and loss-related predictors of needs class membership, and (c) investigate whether survivors in these need profiles differ in terms of bereavement outcomes. Using latent profile analysis, four distinct classes of bereavement-related needs were identified among a sample of 347 sudden loss survivors: a low needs (LN) class, a moderate-spiritual (MNS) needs class, a moderate-relational (MNR) needs class, and a high needs (HN) class. A number of individual, relational, and loss-related factors, such as gender identity, pre-death closeness with the decedent, time elapsed since the death, and mode of loss (e.g., suicide, overdose, natural-sudden) predicted need class membership. Lastly, clear differences emerged between need classes with regard to grief and mental health sequelae indicating that individuals in the HN class encounter significantly greater adverse outcomes, including higher levels of complicated grief, PTSD, mood and anxiety-related symptomatology, among others, while

individuals in the LN class reported significantly lower levels of adverse outcomes including greater levels of post-loss adjustment (e.g., meaning making, posttraumatic growth). Results underscore the importance of tending to bereavement-related needs in clinical practice and other supportive contexts. Additional recommendations for clinical work and future research are discussed.

Table of Contents

List of Tables	v
Introduction	1
Mental Health Consequences of Sudden Loss	2
Additional Vulnerability Factors in Sudden Death Bereavement	5
Adaptive Outcomes in the Wake of Sudden Loss	8
Bereavement-Related Needs and Sudden Loss: A Promising Path to Adaptation	9
Methods	13
Participants	13
Procedures	14
Measures	15
Analytic Plan	23
Statistical Analysis	23
Results	25
Latent Profile Analysis	25
Class Descriptions	27
Unadjusted Analyses Examining Baseline Differences Across Latent Profiles	29
Predictors of Latent Profile Membership	31
Grief-Related Outcomes Across Bereavement-Related Need Profiles	34
Thematic Elements of Grief	39
Discussion	40
Need Categories in Each Class	41
Predictors of Needs Classes	43
Mental Health and Grief-Related Outcomes Among Classes	47
Complicated Grief Symptoms	47
PTSD Symptomatology	49
Suicide Risk	50
Depression and Anxiety	53
Meaning Making	55
Posttraumatic Growth	57
Thematic Elements of Grief	59
Clinical Implications	61
Limitations of the Current Study	65
Conclusion	67
References	69
Appendix A (IRB Approval Letter)	82

List of Tables

Table	Page(s)
1. Endorsement and Importance of Needs by Loss Group	18
2. Fit Criteria for LPA Solutions One Through Six	26
3. Means (SE) for Bereavement-Related Need Indicators for four-class Solution	29
4. Baseline Sample Characteristics and Unadjusted Analyses Examining Latent Profile Group Membership	30
5. Multinomial Logistic Regression Analysis Examining Predictors of Class Membership	32
6. Intercepts (SE) and Comparisons Across Grief-Related Outcome Measures for Each Latent Class	35
7. Differences in Grief-Related Outcomes Across Profiles	36-37

Introduction

The loss of a loved one through death is a common and universal experience. Experiencing the sudden death (e.g., intracranial hemorrhage, suicide, fatal overdose) of a loved one or close other, although not universal, is still fairly common in the United States. Studying a large representative sample of American adults, Kilpatrick and colleagues (2013) found that 56.5% of individuals experienced at least one unexpected death of a close other in their lifetime. These findings have been confirmed in other population-based studies that identified 50.3% of the population experiencing the unexpected death of a loved one, with nearly one-third rating this loss as the worst potentially traumatic event they have experienced (Keyes et al., 2014). Regarding the annual prevalence of sudden death, it has been estimated that approximately 5% of the total number of annual deaths in Western countries are due to unexpected causes (Norris, 1992), but recent epidemiological figures suggest that this estimate may be conservative. For example, sudden cardiac deaths are responsible for approximately half of all heart disease deaths in the United States, resulting in nearly a third of a million deaths each year due to this cause alone (e.g., Chugh et al., 2008; Curtin, 2019). Other unexpected forms of death occur at alarmingly high rates and appear to be on the rise. In 2018, 67,367 deaths occurred due to fatal overdose in the United States. However, between May 2019 and May 2020, over 81,000 people died due to a fatal overdose, with synthetic opioids as the primary culprit (Stephenson, 2020). Suicide, the 10th leading cause of death annually, has been steadily increasing each year and accounted for over 48,000 deaths in 2018 (Hedegaard, Curtin, & Warner, 2020). With the United States currently grappling with the COVID-19 pandemic in myriad ways, the number of deaths due to overdose and suicide are only likely to burgeon (e.g., Reger, Stanley, & Joiner, 2020);

Wakeman, Green, & Rich, 2020). Given these recent and alarming statistics, particularly with regard to the likely increase in sudden deaths due to opioid-related overdose and suicide, it is clear that a substantial proportion of individuals in the United States experience the tragic and unexpected death of a close other.

Mental Health Consequences of Sudden Loss

The majority of people who experience the loss of a loved one will adjust to the death without complication or impairment (e.g., Stroebe, Schut, & Stroebe, 2007). However, when the death is unexpected, initial shock may prevent the mourner from grasping the reality of the loss, and individuals are unable to share a comforting last message with the decedent or carry out wishes before their death. As such, the nature of the unexpected death prevents mourners from proactively assimilating the loss in a coherent fashion, and may profoundly affect their beliefs about predictability and safety. It is unsurprising, therefore, that the phenomenology of sudden loss may give rise to grief-related pathology. Complicated grief (CG), often referred to as prolonged grief disorder in the psychiatric nomenclature, is a relatively new psychiatric diagnosis that has been recognized in the 11th revision of the International Classification of Diseases (ICD-11) and will be included in the forthcoming text revision for the DSM-5 (Moran, 2020). As currently defined, CG includes symptoms of intense yearning for the deceased, identity disruption, disbelief, avoidance of bereavement-related stimuli, protracted emotional pain, difficulties moving on, numbness, loss of meaning, and loneliness following the death of someone close that exceeds cultural and contextual norms (e.g., Prigerson et al., 2009). While it has been estimated that 10-15% of bereft individuals will meet criteria for CG following the death of a close other due to natural causes (e.g., Prigerson, 2004), far higher rates of CG

diagnoses have been found among individuals who lose a loved one or close other to sudden causes (e.g., Lobb et al., 2010).

Beyond the grief-specific pathology of CG, other deleterious mental health outcomes, such as posttraumatic stress disorder (PTSD), appear to be associated with sudden loss. For example, although studies have found that bereavement following expected and natural causes of death can generate traumatic stress reactions (e.g., Zisook, Chentsova-Dutton, & Shucter, 1998), population-based studies have found that sudden or unexpected loss may represent a unique risk factor for PTSD (e.g., Van Amerigen, Mancini, Patterson, & Boyle, 2008). Large cross-national studies have identified that, on average, 5.2% of individuals who experience an unexpected death meet criteria for a PTSD diagnosis (Atwoli et al., 2017). To better understand the mechanisms underlying the risk for PTSD among individuals bereaved by sudden loss, Boelen (2015) explored the role of unexpectedness of the death following illness loss in a sample of 220 individuals and found that elevated unexpectedness was associated with higher PTSD symptoms, pointing to its possible unique contribution to traumatic stress reactions. The degree of unexpectedness of the loss may also extend to the development of mood-related pathology and symptoms following loss. For example, the odds of being diagnosed with Major Depressive Disorder are significantly greater for those who had experienced an unexpected death in their lifetime compared to those who did not, regardless of age of the bereaved individual, while older individuals appeared more vulnerable to anxiety-related disorders following sudden loss (Keyes et al., 2014). Similar results were found in a prospective study of 193 older adults in which unexpected loss was associated with marked increases in depression 6 and 12 months following the death compared to losses that were expected (Burton, Haley, & Small, 2006). Furthermore, in addition to identifying elevations in CG severity among caregivers of dementia patients who

viewed the death as unexpected, the study conducted by Herbert and colleagues (2006) also found that depression and anxiety symptoms were significantly greater at follow-up compared to caregivers who were aware of their loved one's impending death. With specific regard to anxiety, awareness of time before a spouse's fatal condition and impending death predicted anxiety at long-term follow-up in a study conducted in Sweden with 379 widows (Valdimarsdóttir, Helgason, Fürst, Adolfsson, & Steineck, 2004).

Thematic challenges may compound or undergird the mental health of individuals bereaved following sudden loss. Although not directly involved in the unexpected death of a loved one, the bereft may implicate themselves to some degree, such as not being present at the time of a fatal heart attack to render aid or call for emergency assistance, resulting in a distorted sense of responsibility or guilt (e.g., Lehman et al., 1987). In addition, stigma is experienced by a substantial proportion of people confronted with the sudden death of a loved one or close other. Although not exclusive to this form of loss, stigma is often experienced following an overdose loss, in which mourners may perceive or recognize judgment from society regarding the risky or harmful drug-related behavior of the decedent that predated the unexpected death (e.g., Pitman, Osborn, Rantell, & King, 2016; Templeton et al., 2016). Likewise, and relatedly, high levels of grief-related shame are also evident among sudden death mourners, and may manifest in instances where the manner of death is concealed out of fear of social ridicule or suggestion about the decedent or family's conduct leading up to the death (Silverman, Range, & Overholser, 1994). For example, in their qualitative study of 27 mourners following the sudden natural or suicide death of a close other, Pitman and colleagues (2018) noted perceptions of stigmatizing attitudes from the public among all mourners regardless of the loss type, which produced shame, awkwardness in discussing the death, and inevitably greater isolation. It was

noted, however, that suicide bereaved individuals experienced stigmatization more acutely than their sudden natural bereaved counterparts, likely due to high levels of self-imposed stigma.

Additional Vulnerability Factors in Sudden Death Bereavement

Although sudden and unexpected losses appear to generate unique challenges compared to normative and expected losses, evidence suggests that the degree of violence associated with the loss, rather than the death's suddenness, may account for elevated risk of adverse mental health outcomes (e.g., Kaltman & Bonanno, 2003) and thematic challenges (e.g., Pitman, Osborn, Rantell, & King, 2016). In a study that assessed CG symptoms among a large sample of young adults who had experienced the sudden and violent (e.g., homicide, suicide, accident) or natural loss of a close other, Currier and colleagues (2006) found that the violence of the loss, but not the loss' unexpectedness, predicted risk for CG symptomatology. Consistent with the trauma literature, the violent nature of the loss may also account for markedly elevated risk for PTSD above and beyond the suddenness of the loss (e.g., Kaltman & Bonanno, 2003). For example, research has demonstrated that peritraumatic distress (the emotional and physiological arousal and distress experienced during or immediately following a traumatic event) mediates the relationship between violent loss and PTSD symptomatology (e.g., Boelen, 2015; Williams, Hardt, Henschel, & Jobe-Shields, 2020). Further confirmation of the link between PTSD and violent losses was provided by a study of 350 newly bereaved widows and widowers (Zisook, Chentsova-Dutton, & Shuchter, 1998). Little difference was found in the rates of PTSD diagnoses between individuals whose spouses died following a chronic illness or unexpected cause, with 10% and 9% of individuals in the sample meeting criteria for PTSD, respectively, whereas 36% of participants who lost a spouse due to violent causes (e.g., suicide) met criteria for PTSD. Other empirical studies have demonstrated that when the cause of death is violent, the

bereft are more vulnerable to negative mental health outcomes, such as MDD and anxiety-related disorders (e.g., Brent, Melham, Donohoe, & Walker, 2009). In a recent systematic review, Pitman and colleagues (2014), found evidence that parents bereaved by the suicide of their offspring were at greater risk for mood-related disorders compared to parents who lost a child due to other causes, and in particular, mothers whose child died by suicide were at an elevated risk for psychiatric hospitalization. Perhaps the most severe adverse outcome that appears to be particularly associated with violent death losses is the risk for suicide (e.g., Agerbo, 2005). Using a sample of treatment-seeking adults following violent (i.e., suicide, accident, and homicide) and natural death of a close other, the former group reported significantly elevated active suicidal thoughts compared to the latter (Tal et al., 2017). Similar results were confirmed by a recent systematic review of the literature that found that rates of suicide ideation were extremely high among individuals bereaved by a violent death, with rates ranging from 14.1% to 49% of the bereft endorsing active suicidal ideation at the time of the study (Molina et al., 2019). Thematic challenges may be particularly prevalent among violent deaths given the often-volitional nature in which they occur. For instance, and as alluded to earlier, in the case of overdose or suicide loss, stigma, shame, a distorted sense of responsibility, and guilt are markedly elevated (e.g., Guy, 2004; Jordan, 2008; Kőlves et al., 2020; Neimeyer et al., 2002), factors that have been uniquely associated with suicide ideation and risk (e.g., Molina et al., 2019), as well as PTSD symptomatology (Atwoli et al., 2017).

Other aspects of the loss, as well as relational and individual-level factors, may place individuals bereaved following the sudden or violent death of a loved one at greater risk for deleterious outcomes. For example, the acuteness of or time elapsed since the loss is widely understood as a factor that bears on challenges of one's bereavement course and experience (e.g.,

Schwartz, Howell, & Jamison, 2018), and this is especially true in the case for sudden and violent losses (Feigelman, Jordan, & Gorman, 2009). Using a person-centered approach with 245 individuals who experienced a sudden loss, Boelen, Reijntjes, Djelantik, and Smid (2016) identified three classes of individuals based on bereavement-related outcomes and found that classes largely differed in terms of time since the loss, with individuals in the class reflecting greater resiliency having a loss that occurred longer ago compared to the two other classes that included high levels of CG and depressive symptoms. Relationship factors, such as the kinship of the person who died, and more particularly, the quality of the pre-death relationship, also appear to predict levels of post-loss morbidity in the context of sudden or violent loss (e.g., Smigelsky, Bottomley, Relyea, & Neimeyer, 2018). Hardison, Neimeyer, and Lichtstein (2005) found that, among a large sample of heterogeneous bereft college students, the perceived closeness to the decedent, but not necessarily the kinship category, predicted grief-related pathology, and likewise, Hom and colleagues (2017) found that pre-death interpersonal closeness predicted greater suicide risk among a sample of bereaved US military service members. Further highlighting the importance of the quality of the pre-death relationship between the mourner and decedent, particularly when deaths are sudden, violent, or have a volitional quality, Cerel and colleagues (2016) found that increased perceptions of closeness greatly increased the odds for a depressive or anxiety-related disorder, and nearly quadrupled the odds for PTSD among a sample of suicide loss survivors. Additionally, individual-level factors, such as gender (e.g., Chen et al., 1999), represent risk factors for more adverse outcomes among sudden loss survivors. For example, in a large cross-national study of individuals confronted with the unexpected death of a loved one, females were at significantly greater risk for the development of PTSD compared to their male counterparts (Atwoli et al., 2017), while other studies have corroborated the finding

that being female predicts grief-related pathology in the context of sudden or violent loss (e.g., Dyregrov et al., 2003).

Adaptive Outcomes in the Wake of Sudden Loss

Despite the immense challenge that emerges from a sudden and/or violent loss, whether in terms of mental health diagnoses or thematic grief difficulties, evidence suggests that adaptation to unexpected loss is common, and advantageous outcomes are possible. For example, the ability to make meaning of the loss is seen by many as a core task following salient deaths of all kinds (e.g., Gillies & Neimeyer, 2006), and a body of evidence has emerged supporting the notion that an inability to find meaning in the loss experience, such as difficulty making sense of the death or challenges assimilating a revised self-identity, promote deleterious outcomes (e.g., Neimeyer, 2019). This is especially the case in sudden, unexpected, and violent losses. For example, finding meaning in the loss, such as understanding the loss through a religious or spiritual lens, has related to lower mental distress and adverse grief outcomes following violent loss (Schaal et al., 2010). In one study of 1,056 ethnically diverse young adults, the ability to make sense of the death, whether literally or figuratively, explained the relationship between sudden loss and complicated grieving (Currier, Holland, & Neimeyer, 2006). Moreover, the mediating role of meaning made of loss has been demonstrated and replicated in the case of violent death bereavement (e.g., Milman et al., 2018; Rozalski, Holland, & Neimeyer, 2016), providing further evidence that the struggle to integrate the loss into the survivor's system of meaning accounts for nearly all of the unique impact of violent deaths compared with death by natural causes.

A related construct, posttraumatic growth (PTG), reflects a positive change that occurred as a result of one's struggle with an exceptionally difficult event (Calhoun & Tedeschi, 2004)

and can often follow from a successful meaning reconstruction process (Davis, Wohl, & Verberg, 2007; Waugh, Kiemle, & Slade, 2018). In fact, research has suggested mourners rarely experience growth without at least a moderate level of grief-related distress and that the relationship between the difficulty of the loss and PTG is curvilinear (Calhoun, Tedeschi, Cann, & Hanks, 2010; Currier, Holland, & Neimeyer, 2012). For example, one study (Currier, Mallot, Martinez, Sandy, & Neimeyer, 2012) found that adults bereaved by violent death (e.g., suicide) had higher levels of both PTG and CG than did those losing loved ones to natural death and nonbereaved controls. Furthermore, using a network approach, Bellet and colleagues (2018) found support for a causal relation between grief and growth, in which both commonly co-occur, among a large heterogeneous sample of young adult mourners experiencing expected and sudden loss. Using a qualitative approach, Feigelman, Feigelman, and Range (2018) found that PTG was experienced by a subset of drug-death bereaved individuals, and noted that meaning making, such as making sense and finding benefit in the loss through advocacy, appeared to explain such growth, in a manner consistent with other qualitative studies of violent loss (e.g., Bottomley et al., 2018). Furthermore, a recent systematic review (Levi-Belz, Krysinika, & Andriessen, 2020) of PTG among suicide loss survivors confirmed that PTG indeed occurs in the context of violent loss, and that a number of correlates appear to be most strongly related. For example, stigma, suicidal ideation, and more acute losses were associated with less PTG, whereas the greater degree of pre-death closeness, older age of the mourner, and the ability to make meaning of the loss were related to greater levels of PTG.

Bereavement-Related Needs and Sudden Loss: A Promising Path to Adaptation

Given the unique and difficult course of bereavement that is often generated by sudden and unexpected losses, particularly when volitional and violent, recognizing important

bereavement-related needs among this population is a critical task as needs may reflect modifiable grief-related variables. Indeed, scholars have attempted to identify the needs of survivors of sudden and violent losses in order to understand ways in which meeting needs may attenuate risk for mental health symptomatology or, ideally, promote adaptive outcomes, such as PTG. For example, in one of the first investigations of the perceived needs of bereaved individuals following suicide, Provini, Everett, and Pfeffer (2000) found that 26% of the sample expressed bereavement-related needs (e.g., professional intervention, assistance with disclosing the death to others), whereas 31% reported no needs at all. However, this study, like many others that have been conducted in the past two decades, failed to demarcate specific needs and the impact they might have on one's grief experience following sudden loss, including mental health and grief-related outcomes. In another study that utilized a Norwegian sample of 179 parents who lost a child to a violent loss, nearly 88% expressed a need for professional intervention, but with little indication of what type of intervention or for what purpose (e.g., "moving on", symptom reduction, psychiatric medication; Dyregrov, 2002). Merlevede and colleagues (2004) conducted interviews and employed standardized questionnaires in an emergency department to ascertain the mourning reactions and needs of individuals whose loved ones died unexpectedly. Although this mixed-methods study revealed a number of concise needs, such as a need to understand the pathophysiologic process leading to the death, or a need for emotional support in the distant months after an unexpected loss, physician interpretation, as opposed to a direct assessment of needs from the mourners' perspective, was used and may have inaccurately captured needs. McMenemy, Jordan, and Mitchell (2008) developed a "needs assessment" instrument and attempted to gather information about the specific bereavement-related needs of 63 adult survivors of suicide. However, due to the nature and content of the instrument, survivors

largely reported on their natural coping efforts in four general domains: practical, psychological, and social difficulties; formal and informal sources of support; resources utilized in healing; and barriers to engaging with support since the death (Mcmenamy et al., 2008). As such, this study failed to enumerate the specific needs of individuals bereaved by sudden and violent loss. Along similar lines, a qualitative study of 11 suicide survivors and four mental health practitioners attempted to provide two perspectives on the needs of individuals bereaved by suicide and identified themes related to the grief experience, coping strategies, interpersonal obstacles, struggles with meaning, and moving forward (Gall, Henneberry, & Eyre, 2014). Like others, these investigators failed to provide clear descriptions of needs. Other qualitative investigations that examined the needs of individuals who lost a close other due to sudden cardiac arrest identified salient needs similar to the Merlevede (2004) study, such as a need for an unambiguous notification and information about the death (e.g., why the death occurred), as well as emotional sensitivity from others (Wisten & Zingmark, 2006). These needs, however, were interpreted by the authors in the context of a medical care environment (i.e., emergency department), and thus were narrow in focus. With the goal of informing future postvention efforts, a recent qualitative study identified the changing needs of sudden and violent loss survivors (Ross, Kõlves, & De Leo, 2019). The authors acknowledged a need for proactive and practical support among survivors of violent loss, particularly early in the course of bereavement, such as providing mourners with information on the grief process following suicide or guiding them through support services (Ross, Kõlves, & De Leo, 2019). The authors, however, failed to describe other more specific needs that might be subsumed within their description of “proactive and practical” support. Although not explicitly described as a need, Ross, Kõlves, and De Leo (2019) found that many survivors in their study derived great benefit from talking with others

who shared a similar experience of loss, consistent with previous findings (Bottomley et al., 2018; Feigelman & Feigelman, 2008), and identified the need for professional facilitation of support groups for survivors of suicide loss. This qualitative study reflected a promising direction with regard to identifying specific needs of survivors of sudden and violent loss, much like the study conducted by Merlevede and colleagues (2004). However, like many other prior attempts to identify needs, these investigations lacked precision and often failed to directly inquire about needs among the bereaved. Given that previous quantitative studies have employed ambiguous instruments that more often than not further describe the phenomenology of sudden and violent loss, identifying needs with clarity and based on direct reporting from the bereft is an important next step in the literature. Moreover, although descriptive and illuminating, qualitative examinations of needs preclude investigations that explore the associations between the importance of needs and mental health and grief-related sequelae. As a result, ambiguity regarding the needs of survivors of sudden or violent loss, and the association of these needs with bereavement outcomes, has persisted.

The current study seeks to address this substantial gap by examining the bereavement-related needs among a heterogeneous sample of individuals bereaved by a sudden death. Its utilization of a person-centered approach will provide a rich and detailed illustration of individuals' bereavement-related needs in the wake of a sudden loss, and allow a thorough examination of how constellations of needs are associated with mental health and grief-related outcomes. In order to illuminate prospective pathways to adaptation following sudden loss, it is imperative that the bereavement-related needs of survivors of sudden loss, as well as the mental health and grief-related outcomes associated with the importance of these needs, be examined.

In particular, using a person-centered approach, this study first aims to identify patterns of needs among sudden loss survivors. Although this is the first study to examine bereavement-related needs using a person-centered approach, based on the variability of grief responses evidenced in the literature, it is hypothesized that the data will best fit into a multi-class solution consisting of at least three salient needs profiles (Hypothesis 1). A second aim of the current study is to identify the individual, relational, and death-related factors that predict patterns of need. It is hypothesized that the death of individuals who were viewed as close, that occurred more recently, and that were due to violent causes (e.g., suicide and overdose) will be similarly grouped and endorse greater levels of bereavement-related needs (Hypothesis 2), consistent with previous studies that find these factors significantly associated with grief difficulties. A final aim of the current study is to examine the association between the importance of bereavement-related needs and mental health and grief-related outcomes. It is hypothesized that classes that endorse greater bereavement-related needs will experience more adverse mental health and grief-related challenges, and rate meaning making and pragmatic needs as most important.

Methods

Participants

The study sample included 347 adults, aged 18-79 ($M_{age} = 40.83$ years, $SD = 17.25$) who had lost a loved one or close other due to sudden or violent means, including deaths due to suicide ($n = 151$), opioid overdose ($n = 95$), and natural but sudden causes (e.g., acute myocardial infarction; $n = 101$). The decedent represented a broad range of kinship categories, but the majority of participants lost a child ($n = 121$; 34.9%), sibling ($n = 56$; 16.1%), parent ($n = 36$; 10.4%), or grandparent ($n = 38$; 11%), with the remaining participants experiencing the death

of a distant family member (e.g., cousin, aunt/uncle; $n = 30$; 10.1%), spouse/partner ($n = 29$; 8.4%), or friend ($n = 22$; 6.3%). A small proportion of other relationships (e.g., coworkers; $n = 15$; 4.4%) were also represented in the sample. Time since the loss (TSL) varied, with a range between two months and 5 years ($M_{Tsl} = 25.27$ months, $SD = 17.49$ months). The vast majority of participants identified as female ($n = 284$; 81.8%) and white ($n = 252$; 72.6%). Greater than a quarter of participants represented ethnic minority populations, with 48 participants identifying as African American/Black (13.8%), 23 as Hispanic/Latino (6.6%), 18 as Asian (5.2%), and six as Native American (1.4%). Regarding socioeconomic indicators, nearly half had completed a college degree ($n = 163$; 47%), and a substantial proportion completed some college ($n = 123$; 35.4%), while all others obtained a high school degree ($n = 61$; 17.6%). Yearly household income varied, with 13.2% reporting a household income below \$10,000, 29.1% between \$10,000 and \$50,000 ($n = 101$), 33.2% between \$50,000 and \$100,000 ($n = 115$), 13% between \$100,000 and \$150,000 ($n = 45$), with 11.5% ($n = 40$) above \$150,000.

Procedures

Data collection occurred via online surveys using Qualtrics, a secure survey system that meets established standards for Internet security, research, and IRB policy (“Qualtrics Security Statement,” 2016). Upon IRB approval, participants who were least 18 years of age and experienced the death of a loved one or close other due to sudden causes within the previous five years—a timeframe widely employed in thanatology research—were recruited using various strategies. Recruitment of sudden and violent loss survivors occurred through the dissemination of virtual flyers to numerous social media groups (e.g., Parents of Suicide Loss; Grief Recovery After a Substance Passing), word-of-mouth referrals, American Foundation for Suicide Prevention (AFSP) newsletter advertisements, and notifications of the study on the American

Association of Suicidology (AAS) survivor listserv. Added emphasis was placed on the social media outlets in order to attract a substantial number of participants who were not already engaged in services offered by numerous support organizations. Recruitment of individuals bereaved following the sudden but natural death of a close other occurred through online social media posts targeting general loss support organizations. In addition, undergraduate students (n = 46) from a large university located in the Mid-South region of the United States who had endorsed experiencing the sudden but natural death of a close other within the past 5 years were recruited through an online subject pool system that exchanges course credit for research participation. All prospective participants were directed to a central study website (stlproject.org) that contained information regarding the nature of the study, the personnel, and the study's likely contribution to the literature. Participants were offered a modest monetary incentive (\$5 Amazon eGift Card or a donation made to an organization/charity of their choice) for completion the survey.

Measures

Using a person-centered approach, the primary aim of the current study is to identify patterns (classes) of need among a sample of individuals confronting the sudden loss of a close other, to examine demographic, relational (e.g., pre-death closeness), and loss-related (e.g., cause of death, TSL) predictors of needs class membership, and to explore associations between patterns of needs and mental health and bereavement-related outcomes, adjusting for the aforementioned predictors (covariates). Accordingly, a number of validated measures and community-informed assessments (e.g., identification of needs) were included in the online survey battery. To ensure high quality data, three validity checks were employed throughout the survey and disguised as assessment items (e.g., "if you are reading this, select the '*most of the*

time’ option”). To be included in the final analyses, participants had to correctly respond to all three validity items.

Demographic, Relational, and Loss Variables. Select demographic variables were obtained, including sex, age, ethnicity, vocation and other related SES indicators, cause of death, age of the decedent, kinship category of the decedent, and time since the loss. Pre-death levels of closeness with the decedent were assessed using the Quality of Relationships Inventory—Bereavement Version (QRI-B; Bottomley, Smigelsky, Floyd, and Neimeyer, 2017), a 13-item self-report measure that assesses closeness and conflict between the mourner and deceased prior to the death. The Closeness scale was utilized for the purpose of the current study, and items on this scale assess the degree to which the relationship was supportive and intimate prior to the death (e.g., “*To what extent could you count on this person to help you if a family member very close to you died?*”). Items are rated on a 4-point Likert scale ranging from 1 (*not at all*) to 4 (*very much*). The QRI-B has demonstrated high internal consistency across both subscales (Closeness $\alpha = .95$; Conflict $\alpha = .88$), and evidenced strong validity in its relation to outcomes in previous studies (e.g., Bottomley et al., 2017). In the current study, the Closeness factor of the QRI-B demonstrated high internal consistency, $\alpha = .88$.

Bereavement-Related Needs. To identify needs among individuals bereaved by a sudden loss, a comprehensive list of 21 bereavement-related needs was presented. This comprehensive bereavement needs list was co-constructed by bereft community partners who had lost a loved one to sudden causes and the current authors, the latter of which had considerable experience working with the bereaved in research and clinical contexts. The development of needs was an iterative process in which community partners and experts first identified needs, then eliminated needs from the list based on consensus. Community partners

reported needs that were important to them at numerous timepoints in their experience of grief following sudden and violent losses. Needs reported as being of particular importance among the bereft community members and bereavement experts were retained to comprise the final complete list of 21 bereavement-related needs. Participants of the current study were asked to select needs that were salient to them at the time of the assessment in a dichotomous fashion (yes/no). Following this procedure, to limit the number of extraneous items presented to participants, respondents were asked to rate, using a 1 to 5 Likert-type response, how important the selected need was at the time of assessment (1 = not at all important; 5 = extremely important). To assist with interpretability and promote brevity across the 21 need items, needs were thematically categorized to comprise six distinct groups of bereavement-related needs. Meaning making needs included *to understand who I am after the loss* and *to make sense of the loss*, among others. Informational Needs included items such as *to better understand the grief journey following this type of loss* and *to receive valuable information from professionals*. Items such as *to express my thoughts and feelings about the loss with those I love* and *to have my grief witnessed/acknowledged* comprised the Emotional Needs category. Pragmatic Needs included *to eat well*, *to sleep well*, and *to successfully complete daily tasks*, among others. Spiritual Needs included *to have an ongoing connection with God* and/or *my spiritual self*, while Relational Needs included, among other items, *to be with those who experienced a similar loss*. The importance of need items was scored within its corresponding category and utilized in the analysis described herein. Table 1 includes a complete list of needs as well as their individual endorsement and importance rating across the loss groups.

Table 1. *Endorsement and Importance of Needs by Loss Group*

Note. Need Type: 1 = Meaning Making Needs, 2 = Informational Needs, 3 = Emotional Needs, 4 = Pragmatic Needs, 5 = Spiritual Needs, 6 = Relational Needs; M Import = Mean level of importance (0 = Not at all important – 5 = Extremely Important).

		<u>Suicide Loss (n = 151)</u>		<u>Opioid Loss (n = 95)</u>		<u>Natural Loss (n = 101)</u>	
		Yes (%)	M Import	Yes (%)	M Import	Yes (%)	M Import
1	To understand who I am after the loss	120 (79.5)	3.42	78 (77.1)	3.72	41 (40.6)	1.65
	To make sense of the loss	120 (79.5)	3.48	73 (76.8)	3.37	45 (44.6)	1.78
	To better understand the circumstances of the loss	93 (61.6)	2.63	53 (55.8)	2.42	34 (34.7)	1.36
	To find some sort of benefit in the loss	85 (56.3)	2.34	54 (56.8)	2.44	31 (31.7)	1.25
2	To better understand the grief journey following this type of loss	106 (70.2)	2.88	79 (84.2)	3.53	39 (39.6)	1.60
	To be walked through/introduced to various resources	73 (48.3)	1.83	50 (53.6)	2.08	21 (21.8)	0.83
	To receive valuable information from professionals	90 (59.6)	2.32	57 (60)	2.48	31 (31.7)	1.22
	To know how to respond to questions about the loss	76 (50.3)	1.89	62 (66.3)	2.66	41 (41.6)	1.33
3	To express my thoughts and feelings about the loss with those I love	120 (79.5)	3.38	75 (79.9)	3.50	45 (44.6)	1.76
	To have my grief witnessed/acknowledged	118 (78.1)	3.50	84 (89.4)	4.02	66 (66.3)	2.76
	To be emotionally supported	98 (64.9)	2.74	77 (81.1)	3.53	42 (42.6)	1.65
4	To eat well	95 (62.9)	2.38	55 (58.9)	2.24	52 (52.5)	2.18
	To sleep well	121 (80.1)	3.55	72 (76.8)	3.41	68 (68.3)	2.92
	To exercise regularly	111 (73.5)	2.78	60 (64.2)	2.53	60 (59.4)	2.46
	To successfully complete the tasks of the day	87 (57.6)	2.36	49 (52.6)	2.05	47 (47.5)	1.82
	To maintain financial balance	106 (70.2)	2.89	45 (48.4)	2.04	60 (59.4)	2.62
5	To have an ongoing connection with God	66 (43.7)	1.84	36 (38.9)	1.66	59 (58.4)	2.62
	To have an ongoing connection with my spiritual self	88 (58.3)	2.34	59 (63.1)	2.62	57 (56.4)	2.38
6	To be with those who experienced a similar loss	110 (72.8)	2.71	69 (73.6)	2.89	32 (32.7)	1.14
	To receive valuable information/advice from others who have experienced a similar loss	101 (66.9)	2.53	64 (68.4)	2.78	38 (37.6)	1.39
	To express my thoughts and feelings about the loss with those who experienced a similar loss	109 (72.2)	2.79	66 (69.5)	2.83	39 (38.6)	1.37

Complicated Grief. The Inventory of Complicated Grief-Revised (ICG-R; Prigerson et al., 2002; see footnote on p. 788), consists of 19 items that measure severity of complicated grief symptoms, such as yearning or longing for the deceased, numbness, meaninglessness, mistrust, difficulty with acceptance, and identity confusion. Items of the ICG-R are rated on a 5-point Likert-type scale that primarily assesses frequency (1 = never to 5 = always). Strong psychometric properties of the ICG-R have been demonstrated in a number of studies, including support for the instrument's validity in determining a likely CG diagnosis (Barry, Kasl, & Prigerson, 2002), and prediction of a range of adverse physical and mental health consequences of bereavement (e.g., Latham & Prigerson, 2004). Additionally, high internal consistency ($\alpha = .95$) has been reported for the ICG-R in samples of both normative and traumatic loss (Keesee, Currier, & Neimeyer, 2008). The ICG-R demonstrated excellent internal consistency in the current sample, $\alpha = .91$.

Thematic Elements of Grief. Levels of thematic grief elements (e.g., loss-related guilt, shame, stigma, perceived responsibility and rejection) were evaluated using an adapted version of the Grief Experiences Questionnaire (GEQ; Barrett & Scott, 1989). The GEQ was originally developed to address challenges inherent in suicide bereavement. The adapted version of the GEQ (Kölves et al., 2019) consists of 40-items that assess numerous reactions to the loss (e.g., “I feel somehow stigmatized by the death”; “I feel somehow guilty following the death”; “I feel like a social outcast”) using a 5-point Likert-type scale ranging from 1 (*never*) to 5 (*almost always*) and was recently validated in a sample of survivors of suicide loss and sudden death. In multiple studies (e.g., Bailey, Dunham, & Kral, 2000; Kölves et al., 2019), the GEQ was documented as having eight salient factors (e.g., Stigmatization, Responsibility and Feelings of Rejection) with satisfactory psychometric properties within each factor (factors utilized in this

study: Stigmatization: $\alpha = .82$, Guilt: $\alpha = .82$, Rejection: $\alpha = .83$, Shame: $\alpha = .73$). In the current sample, internal consistency was demonstrated to be adequate across all subscales of the GEQ included in this study (Stigmatization: $\alpha = .89$; Guilt: $\alpha = .84$; Rejection: $\alpha = .85$; Shame: $\alpha = .78$).

Depression and Anxiety. The Patient Health Questionnaire-8 (PHQ-8; Kroenke, Spitzer, & Williams, 2001) is an 8-item self-report measure of depressive symptomatology per the DSM-IV (e.g., “Over the past 2 weeks, how often have you been bothered by: ‘little interest or pleasure in doing things’ and ‘Poor appetite or overeating’”). Items are rated on a scale from (0) *Not at all* to (3) *Nearly every day* (range 0-24). Items were summed to produce a total score. Scores of 5, 10, 15, and 20 represent mild, moderate, moderately severe and severe depression, respectively. The PHQ-8 has demonstrated adequate internal consistency ($\alpha = .88$), test-retest reliability, and convergent and divergent validity (e.g., Kroenke, Spitzer, & Williams, 2001; Shin, Lee, Han, Yoon, & Han, 2019). To assess anxiety symptomatology, the Generalized Anxiety Disorder seven-item scale (GAD-7; Spitzer, Kroenke, Williams, & Lowe, 2006) was included in the survey battery. The GAD-7 assesses how often participants experienced anxiety symptoms over the previous two weeks (e.g., “Over the past 2 weeks, how often have you been bothered by: ‘feeling nervous, anxious, or on edge’ or ‘trouble relaxing’”). Items are rated on a scale from (0) *Not at all* to (3) *Nearly every day* (range 0-21) and summed to produce a total severity score. Like the PHQ-8, the GAD-7 has demonstrated strong psychometric properties, including internal consistency ($\alpha = .89$), test-retest reliability, and convergent and divergent validity (e.g., Löwe, Decker, Müller, Brähler, & Schellberg, 2008) in previous studies. Both the PHQ-8 and GAD-7 had strong alpha coefficients within the current sample, with $\alpha = .90$ and $.91$ for the PHQ-8 and GAD-7, respectively.

PTSD. The PTSD Checklist for DSM-5 (PCL-5; Weathers et al., 2013) is a 20-item self-report measure of past-month PTSD symptom criteria. Items correspond with the DSM-5 symptom clusters (i.e., Cluster B [re-experiencing], items 1-5; Cluster C [avoidance], items 6-7; Cluster D [negative alterations in cognition/mood], items 8-14; Cluster E [hypervigilance], items 15-20). Sample items include, “In the past month, how much were you bothered by: ‘repeated disturbing dreams of the stressful experience’ and ‘feeling jumpy or easily startled.’” Items are summed, and rated on a scale from (0) *Not at all* to (4) *Extremely* (range 0-80), with composite scores of 33 or above indicating likely PTSD diagnosis. In the current sample, $\alpha = .93$.

Suicide Risk. Suicide risk was assessed using the 4-item Suicidal Behaviors Questionnaire-Revised (SBQ-R; Osman et al., 2001), a brief self-report instrument that accounts for previous suicide attempts, frequency of suicidal ideation, suicidal communication, and the subjective likelihood of a future suicide attempt. Construct validity for the SBQ-R is strong based on its ability to reliably differentiate between suicidal and non-suicidal subgroups in both clinical and nonclinical contexts. Total scores for the SBQ-R range from 3 to 18, with a cutoff of 7 or higher being indicative of elevated suicide risk (Osman et al., 2001). However, for the current study, we transformed these values by subtracting 3 from each participant’s total score such that “no suicide risk” will be reflected by a score of 0. Previous studies have found this instrument to be highly internally consistent ($\alpha = .94$; Nadorff, Nazem, & Fiske, 2013). In this study, internal consistency was moderately high ($\alpha = .84$).

Meaning Making. The Integration of Stressful Life Experiences Scale—Short Form (ISLES-SF; Holland, Currier, and Neimeyer, 2014) is a 6-item measure that assesses the degree to which participants made meaning of a stressful life event. The ISLES-SF was adapted from the full 16-item measure (Holland et al., 2010). Example items include, “This event is

incomprehensible to me” and “This event has made me feel less purposeful.” Participants were explicitly instructed to respond to these items with regard to the loss of the identified loved one or close other. Responses range from 1 (*strongly agree*) to 5 (*strongly disagree*), and items are scored such that higher scores indicate greater meaning made of the event. The ISLES-SF has been shown to have strong internal consistency ($\alpha=0.94-0.96$), moderate test-retest reliability ($r=.57$), and convergent validity with the full 16-item ISLES (Holland et al., 2014). In the current sample, the ISLES-SF had strong inter-item reliability, $\alpha = .89$.

Posttraumatic Growth. The Posttraumatic Growth Inventory—Short Form (PTGI-SF; Cann, Calhoun, Tedeschi, Taku, et al., 2010) is a 10-item questionnaire that assesses perceptions of positive change in life as a result of a stressful life event. Items cover the five domains of posttraumatic growth (PTG) proposed by Tedeschi and Calhoun (1996), with two items per domain. For the purpose of the present study, participants were asked to answer items on the PTGI-SF in reference to the loss they had experienced. For each item, participants indicated the degree to which they had experienced a specified element of PTG (e.g., “I developed new interests”) on a 6-point Likert-type scale (0 = *I did not experience this change as a result of my loss*, 5 = *I experienced this change to a very great degree as a result of my loss*). The PTGI-SF has displayed convergent validity with measures of rumination style, stressor severity, and core belief disruption, as well as displaying equivalent psychometric properties to those of the original PTGI (Cann, Calhoun, Tedeschi, Taku, et al., 2010), which has been widely used to assess postbereavement growth (Buchi et al., 2007; Currier, Holland, et al., 2012; Engelkemeyer & Marwit, 2008). Additionally, the PTGI-SF demonstrated excellent internal consistency ($\alpha = .90$) and acceptable test-retest reliability ($r=.71$) in previous studies (Cann, Calhoun, Tedeschi, Taku, et al., 2010). In the current sample, $\alpha = .88$.

Analytic Plan

The current study uses a person-centered approach to (a) identify distinct latent classes of bereavement-related needs among survivors of sudden loss, (b) assess individual, relational, and loss-related predictors of needs class membership, and (c) investigate whether survivors in these need profiles differ in terms of bereavement outcomes (i.e., complicated grief, PTSD, depression and anxiety, suicidality, meaning making, posttraumatic growth, thematic elements of grief), after controlling for important covariates (e.g., TSL, pre-death closeness, mode of loss, age, sex).

Statistical Analysis

Latent profile analysis (LPA) was used to estimate varying numbers of latent class solutions based on the responses to the six bereavement-related need groups/indicators. All analyses were conducted using Mplus Version 8.0 (Muthén & Muthén, 1998 – 2017) using full-information maximum likelihood estimation (FIML) with robust standard errors and scaled-log likelihood statistics to account for missing and non-normally distributed data. Models specifying correlated indicators were estimated using 1,000 sets of random start values with 100 iterations to ensure reproduction of global maxima and to avoid misidentification of a false local solution (Hipp & Bauer, 2006). Means and variances of the bereavement-related need indicators were freely estimated in all profiles and significant differences in indicators across profiles were assessed using Wald chi-square tests.

Both statistical and substantive criteria were used to determine the optimal class solution. The Bayesian Information Criterion (BIC; Schwarz, 1978), the Lo-Mendell-Rubin test (LMR; Lo et al., 2001), and entropy were compared across solutions. Lower BIC values suggest better model fit (Rose et al., 2007) and differences equivalent to 10 or greater are indicative of evidence supporting one model compared to another (Raftery, 1995). The LMR likelihood ratio test

assesses relative improvement in model fit by comparing a model with k latent classes with a model with $k-1$ classes, with significant p -values indicative of better fit when including an additional class (Nylund et al., 2007). Entropy, which ranges from 0.00 to 1.00, represents an index used to quantify the likelihood that participants are accurately classified into the appropriate class (Magidson & Vermunt, 2002). Greater classification accuracy is suggested by high entropy values (>0.80) (Berlin et al., 2014). In addition, a scree-plot was generated to aid in determining the optimal class solution, in which log-likelihood values associated with each model were plotted (Nylund et al., 2007). Finally, size and interpretability of differing latent profile solutions were assessed, as classes containing less than 5% of the total sample may suggest over-extraction of the data (Berlin et al., 2014). Models with different numbers of classes were compared using these criteria in addition to considering the theoretical meaning of each solution to determine the optimal number of bereavement-related need profiles.

Upon identification of the optimal class solution, covariates (e.g., age, sex, race, pre-death closeness, time since loss, and mode of loss) were mean-centered and simultaneously assessed as predictors of latent profile membership and grief-related outcomes using multinomial logistic regression and path analysis, respectively. The R3STEP method (Asparouhov, & Muthén, 2014a) was used to conduct logistic regression, which adjusts for measurement error in profile classification in estimating associations between predictors and latent class membership. Due to the nominal nature of the mode of loss covariate, weighted effects coding was used and “sudden-natural loss” was specified as the reference group (Cohen et al., 2013). Mean-centered covariates combined with weighted-effects coded nominal variables contribute to the interpretation of covariate-adjusted grief-related outcome intercepts at means levels, or proportions of the sample, for each covariate. To address missing data on covariates (0-4%

missing), multiple imputation (MI) with 20 imputed data sets was used (Graham et al., 2007; Little et al., 2013). The imputation process included all self-report measures as auxiliary variables and results are reported as pooled estimates.

Significant predictors of class membership and grief-related outcomes were then retained and controlled for in auxiliary models examining differences in grief-related outcomes across latent profiles using the manual three-step BCH method (Asparouhov & Muthén, 2014b). Wald tests were used to assess significant differences in weighted intercepts across profile-specific grief-related outcomes using a secondary auxiliary model adjusting for age, sex, race, pre-death closeness, time since loss, and mode of loss. Hedge's g was used as a bias corrected effect size and statistical significance was set at .01 to control for Type-I errors.

Results

Latent Profile Analysis

Class enumeration. To determine the optimal latent class solution, several models with increasing numbers of latent classes were estimated specifying alternative variance and covariance assumptions. Models specifying classes with freely estimated means and variances fit significantly better compared to those with class varying means and class invariant variances. In addition, models estimated with class varying covariances tended to converge upon non-identified solutions in which the highest log-likelihood was not replicated. Thus, covariances were constrained to equality across classes to assist in model convergence. Fit statistics for models estimated with one through six latent classes are presented in Table 2. Models failed to converge beyond six classes despite increasing the amount of random start values to 4,000.

Table 2. *Fit Criteria for LPA Solutions One Through Six*

Note. LL = log-likelihood; BIC = Bayesian Information Criterion; LMR = Lo-Mendell-Rubin. A seven-class solution was also tested, but the model did not converge. Models were estimated with class-varying variances and class-invariant covariances. Boldface = lowest value. $N = 347$.

Fit Statistics	Number of Classes					
	1	2	3	4	5	6
Optimal LL	-6192.85	-6082.13	-5987.23	-5920.78	-5964.01	-5988.18
BIC	12543.63	12485.98	12459.96	12227.62	12789.42	12904.86
LMR	-	260.09	157.66	140.21	20.27	16.65
LMR p	-	< .001	0.007	0.023	0.262	0.697
Entropy	-	0.87	0.91	0.89	0.77	0.71
Count (%)						
Class 1	347 (100.0%)	179 (51.6%)	44 (12.7%)	71 (20.5%)	3 (0.9%)	180 (51.9%)
Class 2	-	168 (48.4%)	131 (37.8%)	36 (10.4%)	233 (67.1%)	75 (21.6%)
Class 3	-	-	172 (49.6%)	98 (28.2%)	11 (3.2%)	3 (0.9%)
Class 4	-	-	-	142 (40.9%)	7 (2.0%)	64 (18.4%)
Class 5	-	-	-	-	93 (26.8%)	2 (0.6%)
Class 6	-	-	-	-	-	23 (6.6%)

Consistent with our first hypothesis, an examination of the information criteria revealed a superior fit for the four-class solution as evidenced by the decline in BIC values from the one-class solution through the four-class solution. BIC values began to increase with the addition of more classes, suggesting that the estimation of a fifth and sixth class failed to improve upon the fit of a four-class model. The LMR test statistic was significant through the four-class solution, suggesting that a four-class model fit significantly better than a three-class model ($p = .023$). The LMR test statistic then reached non-significance ($p > .05$) when the model was expanded to a five-class solution, suggesting that the inclusion of an additional fifth class did not provide significant improvement over a four-class solution. Based on the overall pattern of information criteria, LMR test results, and meaningful interpretation, the four-class model was retained as the optimal class solution. The four-class solution revealed good classification accuracy as indicated by entropy (0.89) and posterior probabilities for most likely class membership ranging from 0.91 to 0.99.

The optimal four-class model probabilistically assigned participants to a *low needs* class (LN; $n = 71$, 20.5%), a *moderate needs-spiritual* class (MNS; $n = 36$, 10.4%), a *moderate needs-relational* class (MNR; $n = 98$, 28.2%), and a *high needs* class (HN; $n = 142$, 40.9%). Figure 1 shows patterns of standardized bereavement-related need indicators across the four bereavement-related need profiles. Table 3 displays unstandardized means of each bereavement-related need indicator by profile as well as tests of between-profile differences.

Class Descriptions

Low needs (LN; $n = 71$). Participants in this profile reported the lowest levels of meaning making, informational, emotional, and pragmatic needs of the four profiles. This profile also endorsed relatively low levels of relational needs that were similar to the MNS profile as well as low spiritual needs that were similar to the MNR profile.

Moderate needs-spiritual (MNS; $n = 36$). Participants in this profile reported moderate levels of meaning making, informational, emotional, and pragmatic needs which were significantly greater than those endorsed by the LN profile but similar to those of the MNR profile. This profile reported the highest levels of spiritual needs which were significantly greater than those endorsed by the other three profiles. Individuals in this profile also displayed the lowest levels of relational needs in the sample, similar to those of the LN profile.

Moderate needs-relational (MNR; $n = 98$). Similar to the MNS profile, participants in this profile reported moderate levels of meaning making, informational, emotional, and pragmatic needs which were significantly greater than those of the LN profile but significantly less than the HN profile. Participants in this profile also endorsed moderate levels of relational needs which were significantly greater than those of both the LN and MNS profiles and significantly less than the HN profile. Participants in this profile also endorsed the lowest levels

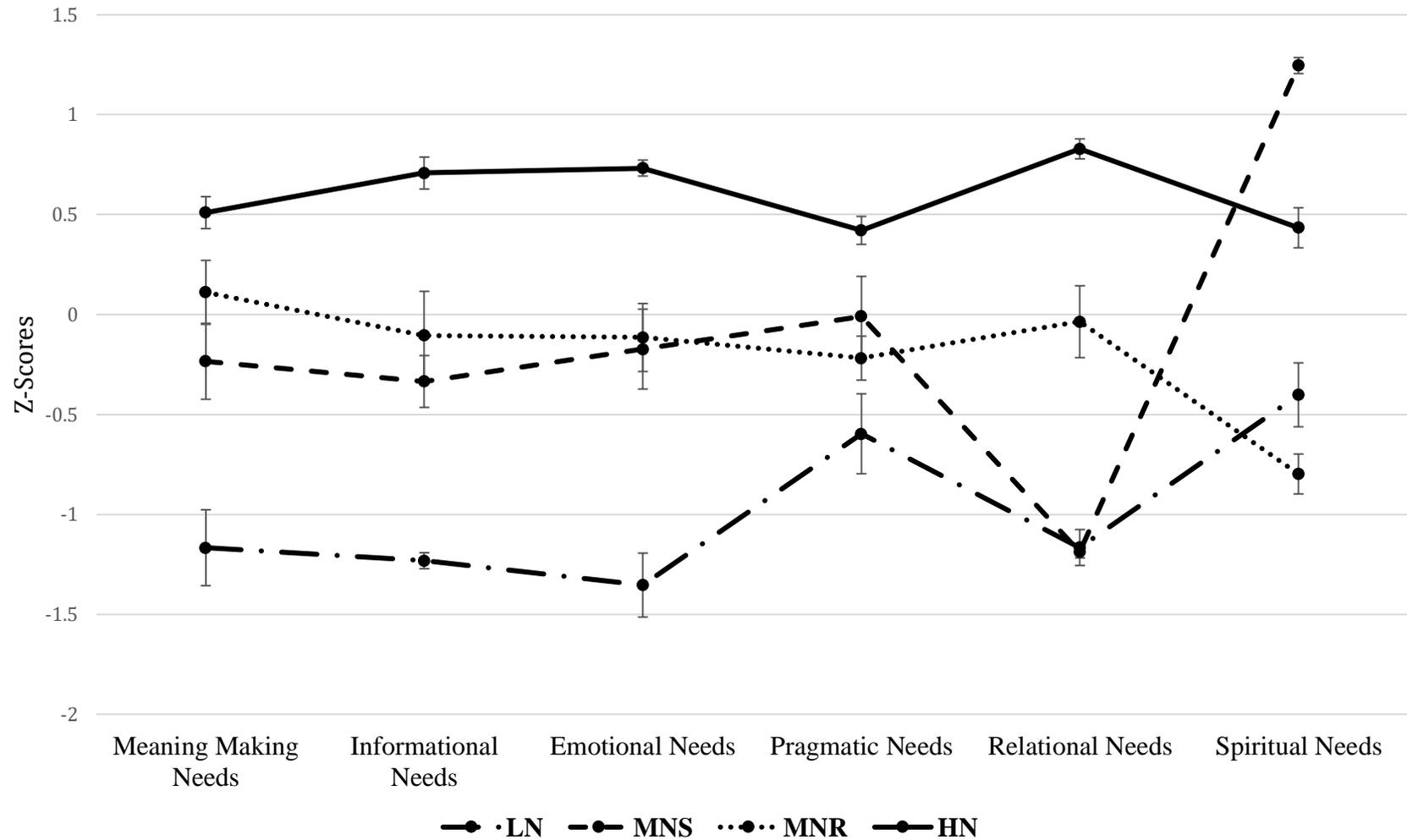


Figure 1. Four class solution bereavement-related needs profiles. LN = Low Needs; MNS = Moderate Needs-Spiritual; MNR = Moderate Needs - Relational; HN = High Needs

Table 3. Means (SE) for Bereavement-Related Need Indicators for four-class Solution

Note. SE = Standard error. LN = Low Needs; MNS= Moderate-Spiritual Needs; MNR = Moderate-Relational Needs; HN = High Needs. Columns that are significantly different from one another share a superscript such that: a = LN vs. MNS, b = LN vs. MNR, c = LN vs. HN, d = MNS vs. MNR, e = MNS vs. HN, and f = MNR vs. HN. Significant differences were tested using Wald's Test.

	Latent bereavement-related need profiles			
	LN (n = 71)	MNS (n = 36)	MNR (n = 98)	HN (n = 142)
Meaning Making Needs	2.65 (1.25) ^{abc}	8.68 (1.23) ^{ae}	10.91 (1.03) ^{bf}	13.49 (0.58) ^{cef}
Informational Needs	0.55 (0.26) ^{abc}	6.18 (0.84) ^{ae}	7.62 (1.40) ^{bf}	12.71 (0.53) ^{cef}
Emotional Needs	2.22 (0.83) ^{abc}	8.10 (1.06) ^{ae}	8.39 (0.86) ^{bf}	12.61 (0.22) ^{cef}
Pragmatic Needs	8.49 (1.52) ^{abc}	12.86 (1.53) ^{ae}	11.31 (0.87) ^{bf}	16.05 (0.57) ^{cef}
Relational Needs	0.49 (0.54) ^{bc}	0.37 (0.17) ^{de}	6.75 (1.04) ^{bdf}	11.55 (0.31) ^{cef}
Spiritual Needs	2.86 (0.65) ^{ac}	9.36 (0.16) ^{ade}	1.29 (0.43) ^{df}	6.16 (0.41) ^{cef}

of spiritual needs in the sample, which were significantly less than those of both the MNS and HN profiles but similar to those of the LN profile.

High needs (HN; n = 142). Participants in this profile reported the highest levels of meaning making, informational, emotional, pragmatic, and relational needs, all of which were significantly greater than those endorsed by the other three profiles. Participants in this profile also reported moderate levels of spiritual needs which were significantly greater than those endorsed by both the LN and MNR profiles but significantly less than those of the MNS profile.

Unadjusted Analyses Examining Baseline Differences Across Latent Profiles

Omnibus tests were used to assess for significant differences across bereavement-related need profiles on demographic factors and baseline variables (see Table 4 for unadjusted comparisons using Wald chi-square tests). Specifically, participants in the HN class were

Table 4. *Baseline Sample Characteristics and Unadjusted Analyses Examining Latent Profile Group Membership*

Note. Columns that are significantly different from one another share a superscript such that: a = LN vs. MNS, b = LN vs. MNR, c = LN vs. HN, d = MNS vs. MNR, e = MNS vs. HN, and f = MNR vs. HN.

Baseline variable	Total Sample (<i>n</i> = 347)	LN (<i>n</i> = 71; 20.5%)	MNS (<i>n</i> = 36; 10.4%)	MNR (<i>n</i> = 98; 28.2%)	HN (<i>n</i> = 142; 40.9%)	<i>p</i>
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	
Demographics						
Age	40.8 (17.2)	30.9 (16.1) ^{bc}	35.4 (16.8) ^e	39.6 (16.2) ^{bf}	48.0 (15.9) ^{cef}	<.001
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	
Female	284 (81.8%)	45 (63.4%) ^{abc}	32 (88.9%) ^a	79 (80.6%) ^{bf}	128 (91.1%) ^{cf}	<.001
Non-White	94 (27.1%)	29 (40.8%) ^{bc}	17 (47.2%) ^{de}	21 (21.4%) ^{bd}	27 (19.0%) ^{ce}	<.001
Baseline Characteristics						
Pre-death closeness	24.7 (7.3)	22.2 (7.6) ^{abc}	26.0 (8.0) ^a	24.7 (6.4) ^{bf}	26.7 (7.5) ^{cf}	<.001
Time since loss	25.3 (17.5)	26.1 (16.1)	29.1 (18.7)	26.1 (18.5)	23.3 (17.1)	.262
Mode of Loss						
Suicide	151 (43.5%)	16 (22.5%) ^{bc}	10 (27.8%) ^{de}	51 (52.3%) ^{bd}	74 (52.1%) ^{ce}	<.001
Overdose	95 (27.4%)	8 (11.3%) ^{bc}	8 (22.2%) ^e	27 (27.6%) ^b	52 (36.6%) ^{ce}	.001

significantly older ($M = 48.0$) compared to participants in all other profiles while those in the MNR class ($M = 39.6$) were significantly older than participants in the LN class ($M = 30.9$). The proportion of female participants was significantly lower among the LN class (63.4%) compared to all other profiles. Additionally, the proportion of female participants was significantly lower among the MNR class (80.6%) compared to the HN class (91.1%). The proportion of non-white participants was significantly higher among both the LN (40.8%) and MNS (47.2%) classes compared to both the MNR (21.4%) and HN (19.0%) profiles.

Relationship category of the decedent was unrelated to latent class membership.

However, participants in the LN profile reported significantly lower levels of pre-death closeness ($M = 22.2$) compared to those in all other groups ($M_{MNS} = 26.0$; $M_{MNR} = 24.7$; $M_{HN} = 26.7$), while participants in the HN class reported significantly higher levels of pre-death closeness compared to the MNR profile.

The four bereavement-related need profiles significantly differed in the proportion of participants reporting suicide-and overdose-related mode of loss. The proportion of participants reporting suicide-related loss was significantly lower among both the LN (22.5%) and MNS (27.8%) classes compared to both the MNR (52.3%) and HN (52.1%) profiles. The proportion of participants reporting overdose-related loss was significantly lower among the LN (11.3%) class compared to both the MNR (27.6%) and HN (36.6%) profiles. In addition, a greater proportion of participants in the HN class reported overdose related-loss compared to the MNS (22.2%) class.

Predictors of Latent Profile Membership

Table 5 displays the results of the simultaneous-entry multinomial logistic regression analysis used to assess predictors of latent profile membership. Adjusted odds ratios (*aORs*) were

Table 5. *Multinomial Logistic Regression Analysis Examining Predictors of Class Membership*

Note. OR = Odds ratio; CI = Confidence interval. The second latent class of each contrast is the reference category. All measures were mean-centered, thus results reflect the probability of being classified into a particular profile holding all other variables at their average. Bold effects are significant at $p < .05$. * $p < .05$. ** $p < .01$. *** $p < .001$.

	MNS vs LN	MNS vs LN	HN vs LN	MNR vs MNS	HN vs MNS	HN vs MNR
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Age	1.51 [0.84, 2.70]	1.58 [0.99, 2.50]	3.16 [1.97, 5.07]***	1.05 [0.64, 1.70]	2.10 [1.28, 3.42]**	2.01 [1.38, 2.91]**
Female	1.79 [1.12, 2.88]*	1.41 [1.04, 1.93]*	2.21 [1.48, 3.28]***	0.79 [0.49, 1.27]	1.23 [0.73, 2.07]	1.56 [1.05, 2.32]*
Non-White	1.26 [0.81, 1.95]	0.73 [0.51, 1.06]	0.80 [0.54, 1.18]	0.58 [0.39, 0.88]**	0.64 [0.43, 0.94]*	1.09 [0.74, 1.61]
Pre-death closeness	2.09 [1.21, 3.63]**	1.46 [1.04, 2.05]*	2.35 [1.57, 3.53]***	0.70 [0.42, 1.16]	1.13 [0.68, 1.86]	1.61 [1.10, 2.36]*
Time since loss	0.99 [0.63, 1.57]	0.88 [0.62, 1.25]	0.63 [0.45, 0.90]**	0.88 [0.57, 1.37]	0.64 [0.41, 0.99]*	0.72 [0.51, 1.02]
Suicide	1.53 [0.50, 2.98]	7.42 [2.73, 16.11]***	6.63 [2.52, 14.96]***	4.85 [1.64, 12.07]**	4.34 [1.53, 12.29]**	0.89 [0.32, 2.49]
Overdose	3.16 [1.76, 13.22]***	7.04 [1.84, 21.76]**	10.34 [2.92, 23.71]***	2.23 [0.64, 7.76]	3.27 [1.25, 10.27]*	1.47 [0.46, 4.67]

calculated holding all other predictors at their average. Older age was significantly associated with an increased probability for expected classification in the HN class relative to all other classes (*aORs* ranging from 2.01 to 3.16). Compared to the LN profile, females were significantly more likely to belong to the MNS (*aOR* = 1.79, 95% confidence interval [CI]: [1.12, 2.88]), MNR (*aOR* = 1.41, 95% CI: [1.04, 1.93]), and HN (*aOR* = 2.21, 95% CI: [1.48, 3.28]) profiles. In addition, females were significantly more likely to belong to the HN profile (*aOR* = 1.56, 95% CI: [1.05, 2.32]) relative to the MNR profile. Relative to the MNS profile, being non-White was significantly associated with a decreased probability for expected classification in both the MNR (*aOR* = 0.58, 95% CI: [0.39, 0.88]) and HN (*aOR* = 0.64, 95% CI: [0.43, 0.94]) profiles.

Compared to the LN profile, participants reporting greater levels of pre-death closeness were significantly more likely to belong to the MNS (*aOR* = 2.09, 95% CI: [1.21, 3.63]), MNR (*aOR* = 1.46, 95% CI: [1.04, 2.05]), and HN (*aOR* = 2.35, 95% CI: [1.57, 3.53]) profiles. In addition, participants reporting greater levels of pre-death closeness were significantly more likely to belong to the HN profile (*aOR* = 1.61, 95% CI: [1.10, 2.36]) relative to the MNR profile. Longer time since loss was significantly associated with a decreased probability for expected classification in the HN profile relative to the LN (*aOR* = 0.63, 95% CI: [0.45, 0.90]), and MNS (*aOR* = 0.64, 95% CI: [0.41, 0.99]) profiles.

Participants reporting suicide-related loss were significantly more likely to belong to the MNR profile relative to both the LN (*aOR* = 7.42, 95% CI: [2.73, 16.11]) and MNS (*aOR* = 4.85, 95% CI: [1.64, 12.07]) profiles. In addition, those reporting suicide-related loss were also significantly more likely to belong to the HN profile relative to both the LN (*aOR* = 6.63, 95% CI: [2.52, 14.96]) and MNS (*aOR* = 4.34, 95% CI: [1.53, 12.29]) profiles.

Compared to the LN profile, participants reporting overdose-related loss were significantly more likely to belong to the MNS ($aOR = 3.16$, 95% CI: [1.76, 13.22]), MNR ($aOR = 7.04$, 95% CI: [1.84, 21.76]), and HN ($aOR = 10.34$, 95% CI: [2.92, 23.71]) profiles. In addition, those reporting overdose-related loss were also significantly more likely to belong to the HN profile ($aOR = 3.37$, 95% CI: [1.25, 10.27]) relative to the MNS profile. Overall, these results identifying time since the death, pre-death closeness to the decedent, and violent losses as predictive of class membership, and associated with the HN and MNR classes in particular, are aligned with the second hypothesis of the current study.

Grief-Related Outcomes Across Bereavement-Related Need Profiles

To assess significant between-profile differences in grief-related outcomes, Wald chi-square tests were conducted using covariate-adjusted means, controlling for average levels of age, sex, race, pre-death closeness, time since loss, and mode of loss. Table 6 presents covariate-adjusted means while Table 7 shows significant between-profile differences. Several significant and large between-profile differences in grief-related outcomes emerged in a manner consistent with our final hypothesis and are summarized below.

PTSD symptoms reported by the HN profile ($est = 37.88$, $SE = 1.88$) were significantly greater than those reported by the LN profile [$est = 15.91$, $SE = 2.67$; LN vs. HN: $p < .001$, $g = 1.38$], the MNS profile [$est = 28.90$, $SE = 3.10$; MNS vs. HN: $p = .013$, $g = 0.56$], and the MNR profile [$est = 31.18$, $SE = 2.04$; MNR vs. HN: $p = .025$, $g = 0.41$]. In addition, both the MNS and MNR profiles reported significantly more PTSD symptoms compared to the LN profile [LN vs MNS: $p = .002$, $g = 0.77$; LN vs MNR: $p < .001$, $g = 0.90$], while no significant differences emerged between the MNS and MNR profiles ($g = 0.13$).

Table 6. *Intercepts (SE) and Comparisons Across Grief-Related Outcome Measures for Each Latent Class*

Note. SE = Standard error; LN = Low Needs; MNS = Moderate-Spiritual Needs; MNR = Moderate-Relational Needs; HN = High Needs; All measures conducted using covariate-adjusted means, controlling for age, sex, race, pre-death closeness, time since loss, and mode of loss.

Measures	LN	MNS	MNR	HN	Class Comparisons
	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	
PCL	15.91 (2.67)	28.90 (3.10)	31.18 (2.04)	37.88 (1.88)	HN > LN & MNS & MNR; MNS = MNR; MNS & MNR > LN
Suicide Risk	6.66 (0.71)	6.30 (0.51)	7.69 (0.41)	9.17 (0.57)	HN > LN & MNS & MNR; MNR > MNS; MNS & MNR = LN
ICG	23.08 (2.37)	26.37 (2.75)	35.21 (1.47)	37.48 (1.33)	HN = MNR; HN & MNR > MNS & LN; MNS = LN
PHQ-8	5.95 (1.41)	8.77 (1.14)	8.65 (0.67)	11.73 (0.63)	HN > LN & MNS & MNR; MNS = MNR = LN
GAD-7	5.41 (1.20)	6.57 (0.89)	7.87 (0.60)	9.64 (0.62)	HN > LN & MNS; HN = MNR; MNS = MNR = LN
ISLES-SF	22.77 (1.24)	16.58 (1.52)	18.02 (0.65)	16.08 (0.61)	LN > MNS & MNR & HN; MNS = MNR & HN; MNR > HN
PTGI-SF	27.81 (2.26)	32.18 (2.52)	25.74 (1.30)	28.07 (1.40)	HN = MNS & MNR & LN; MNS > MNR; LN = MNS = MNR
GEQ-Stigma	8.67 (0.89)	10.70 (0.73)	11.88 (0.60)	12.78 (0.73)	HN > MNS; HN & MNR > LN; MNR = MNS & HN; LN = MNS
GEQ-Guilt	12.38 (0.80)	15.73 (0.86)	15.43 (0.57)	17.08 (0.60)	MNS & MNR & HN > LN; MNS = MNR = HN
GEQ-Rejection	8.42 (0.57)	10.16 (0.92)	10.79 (0.58)	12.64 (0.78)	HN > MNS & LN; MNR = HN & MNS; MNR > LN; LN = MNS
GEQ-Shame	8.08 (0.54)	11.04 (1.11)	11.73 (0.52)	10.66 (0.47)	MNS & MNR & HN > LN; MNS = MNR = HN

Table 7. *Differences in Grief-Related Outcomes Across Profiles*

Note. Significant differences were tested using Wald's Test. Ref = reference group.

** $p < .01$; ***** $p < .001$

Profiles	Estimate	SE	Estimate/SE	p-value	Effect Size (g)
LN (ref) vs. MNS					
PCL	-13.00	4.17	-3.12	.002**	-0.77
Suicide Risk	0.36	0.88	0.41	.683	0.09
ICG	-3.30	3.67	-0.89	.369	-0.23
PHQ-8	-2.82	1.84	-1.54	.124	-0.47
GAD-7	-1.17	1.50	-0.78	.436	-0.20
ISLES-SF	6.18	1.99	3.10	.002**	-0.88
PTGI-SF	-4.37	3.44	-1.27	.203	0.36
GEQ-Stigma	-1.40	1.17	-1.20	.230	-0.40
GEQ-Guilt	-3.35	1.19	-2.81	.005**	-0.59
GEQ-Rejection	-1.74	1.11	-1.57	.117	-0.35
GEQ-Shame	-2.96	1.26	-2.35	.019*	-0.65
LN (ref) vs. MNR					
PCL	-15.27	3.46	-4.41	< .001***	-0.90
Suicide Risk	-1.04	0.84	-1.24	.217	-0.26
ICG	-12.14	2.86	-4.24	< .001***	-0.90
PHQ-8	-2.70	1.59	-1.70	.090	-0.45
GAD-7	-2.47	1.36	-1.81	.070	-0.43
ISLES-SF	4.75	1.44	3.31	.001**	0.78
PTGI-SF	2.07	2.69	0.77	.442	0.17
GEQ-Stigma	-3.21	1.11	-2.90	.004**	-0.61
GEQ-Guilt	-3.05	1.02	-3.01	.003**	-0.57
GEQ-Rejection	-2.37	0.85	-2.80	.005**	-0.44
GEQ-Shame	-3.65	0.78	-4.71	< .001***	-0.83
LN (ref) vs. HN					
PCL	-21.98	3.25	-6.76	< .001***	-1.38
Suicide Risk	-2.51	0.91	-2.77	.006**	-0.54
ICG	-14.40	2.71	-5.32	< .001***	-1.20
PHQ-8	-5.78	1.54	-3.76	< .001***	-0.98
GAD-7	-4.24	1.35	-3.15	.002**	-0.72
ISLES-SF	6.69	1.38	4.85	< .001***	1.15
PTGI-SF	-0.26	2.65	-0.09	.922	-0.02
GEQ-Stigma	-4.12	1.14	-3.60	< .001***	-0.78
GEQ-Guilt	4.71	0.99	4.71	< .001***	0.88

GEQ-Rejection	-4.22	0.96	-4.38	< .001***	-0.78
GEQ-Shame	-2.58	0.71	-3.65	< .001***	-0.59
MNS (ref) vs. MNR					
PCL	-2.28	3.71	-0.61	.540	-0.13
Suicide Risk	-1.40	0.65	-2.13	.03*	-0.37
ICG	-8.84	3.11	-2.84	.005**	-0.63
PHQ-8	0.12	1.32	0.09	.927	0.02
GAD-7	-1.30	1.07	-1.22	.223	-0.23
ISLES-SF	-1.44	1.65	-0.87	.382	-0.21
PTGI-SF	6.44	2.84	2.29	.023*	0.54
GEQ-Stigma	-1.81	0.95	-1.92	.055	-0.22
GEQ-Guilt	0.30	1.03	0.29	.772	0.05
GEQ-Rejection	-0.63	1.09	-0.58	.560	-0.11
GEQ-Shame	-0.69	1.23	-0.56	.573	-0.15
MNS (ref) vs. HN					
PCL	-8.98	3.63	-2.48	.013*	-0.56
Suicide Risk	-2.87	0.77	-3.74	< .001***	-0.62
ICG	-11.11	3.05	-3.64	< .001***	-0.91
PHQ-8	-2.96	1.30	-2.28	.023*	-0.51
GAD-7	-3.07	1.09	-2.83	.005**	-0.52
ISLES-SF	0.51	1.63	0.31	.757	0.08
PTGI-SF	4.11	2.89	1.42	.155	0.33
GEQ-Stigma	-2.72	1.03	-2.64	.008**	-0.39
GEQ-Guilt	-1.36	1.05	-1.29	.197	-0.25
GEQ-Rejection	-2.48	1.21	-2.05	.040*	-0.45
GEQ-Shame	0.38	1.21	0.31	.754	0.09
MNR (ref) vs. HN					
PCL	-6.71	2.99	-2.24	.025*	-0.41
Suicide Risk	-1.48	0.75	-1.96	.050*	-0.33
ICG	-2.27	2.14	-1.06	.290	-0.19
PHQ-8	-3.08	0.99	-3.10	.002**	-0.52
GAD-7	-1.77	0.94	-1.89	.059	-0.30
ISLES-SF	1.95	0.96	2.04	.042*	0.33
PTGI-SF	-2.33	2.04	-1.14	.254	-0.19
GEQ-Stigma	-0.90	1.00	-0.90	.367	-0.17
GEQ-Guilt	-1.65	0.89	-1.86	.064	-0.31
GEQ-Rejection	-1.85	1.03	-1.79	.074	-0.32
GEQ-Shame	1.07	0.75	1.43	.153	0.24

Suicide risk of the HN profile ($est = 9.17, SE = 0.57$) was significantly greater than that of the LN profile [$est = 6.66, SE = 0.71$; LN vs. HN: $p = .006, g = 0.54$], the MNS profile [$est = 6.30, SE = 0.51$; MNS vs. HN: $p < .001, g = 0.62$], and the MNR profile [$est = 7.69, SE = 0.41$; MNR vs. HN: $p = .050, g = 0.33$]. The MNR profile reported significantly greater suicide risk compared to the MNS profile [MNS vs MNR: $p = .033, g = 0.37$], while neither the MNS or MNR profiles significantly differed from the LN profile ($g = 0.09, g = 0.26$, respectively).

Severity of complicated grief symptoms of the HN ($est = 37.48, SE = 1.33$) and MNR profiles ($est = 35.21, SE = 1.47$) were significantly greater than that of both the LN [$est = 23.08, SE = 2.37$; LN vs. HN: $p < .001, g = 1.20$; LN vs. MNR: $p < .001, g = 0.90$] and MNS profiles [$est = 26.37, SE = 2.75$; MNS vs. HN: $p < .001, g = 0.91$; MNS vs. MNR: $p = .005, g = 0.63$]. No significant differences emerged between HN and MNR profiles ($g = 0.19$) as well as between LN and MNS profiles ($g = 0.23$).

Depressive symptoms of the HN profile ($est = 11.73, SE = 0.63$) were significantly greater than those of the LN profile [$est = 5.95, SE = 1.41$; LN vs. HN: $p < .001, g = 0.98$], the MNS profile [$est = 8.77, SE = 1.14$; MNS vs. HN: $p = .023, g = 0.51$], and the MNR profile [$est = 8.65, SE = 0.67$; MNR vs. HN: $p = .002, g = 0.52$]. No other significant differences emerged between profiles.

Anxiety symptoms of the HN profile ($est = 9.64, SE = 0.62$) were significantly greater than that of the LN [$est = 5.41, SE = 1.20$; LN vs. HN: $p = .002, g = 0.72$] and MNS profile [$est = 6.57, SE = 0.89$; MNS vs. HN: $p = .005, g = 0.52$]. No other significant differences emerged between profiles.

Meaning making reported by the LN profile ($est = 22.77, SE = 1.24$) was significantly greater than that of the MNS profile [$est = 16.58, SE = 1.52$; LN vs. MNS: $p = .002, g = 0.88$],

the MNR profile [$est = 18.02, SE = 0.65$; LN vs. MNR: $p = .001, g = 0.78$], and the HN profile [$est = 16.08, SE = 0.61$; LN vs. HN: $p < .001, g = 1.15$]. The MNR profile reported significantly greater levels of meaning making compared to the HN profile [MNR vs HN: $p = .042, g = 0.33$], while neither the MNR or HN profiles significantly differed from the MNS profile ($g = 0.21, g = 0.08$, respectively).

Posttraumatic growth of the MNS profile ($est = 32.18, SE = 2.52$) was significantly greater than that of the MNR profile [$est = 25.74, SE = 1.30$; MNS vs. MNR: $p = .023, g = 0.54$]. No other significant differences emerged between profiles.

Thematic Elements of Grief

Levels of loss-related stigma of the HN profile ($est = 12.78, SE = 0.73$) were significantly greater than that of both the LN [$est = 8.67, SE = 0.89$; LN vs. HN: $p < .001, g = 0.78$] and MNS profiles [$est = 10.70, SE = 0.73$; MNS vs. HN: $p = .008, g = 0.39$]. The MNR profile ($est = 11.88, SE = 0.60$) reported significantly greater levels of loss-related stigma compared to the LN profile [LN vs MNR: $p = .004, g = 0.61$]. No other significant differences emerged between profiles.

Levels loss-related guilt of the HN ($est = 17.08, SE = 0.60$), MNS ($est = 15.73, SE = 0.86$), and MNR profiles ($est = 15.43, SE = 0.57$) were significantly greater than that of the LN profile [$est = 12.38, SE = 0.80$; LN vs. HN: $p < .001, g = 0.88$; LN vs. MNS: $p = .005, g = 0.59$; LN vs. MNR: $p = .003, g = 0.57$]. No other significant differences emerged between profiles.

Levels of loss-related rejection of the HN profile ($est = 12.64, SE = 0.78$) were significantly greater than that of both the LN [$est = 8.42, SE = 0.57$; LN vs. HN: $p < .001, g = 0.78$] and MNS profiles [$est = 10.16, SE = 0.92$; MNS vs. HN: $p = .040, g = 0.45$]. The MNR profile ($est = 10.79, SE = 0.58$) reported significantly greater levels of loss-related rejection

compared to the LN profile [LN vs MNR: $p = .005$, $g = 0.44$]. No other significant differences emerged between profiles.

Levels of loss-related shame of the HN ($est = 10.66$, $SE = 0.47$), MNS ($est = 11.04$, $SE = 1.11$), and MNR profiles ($est = 11.73$, $SE = 0.52$) were significantly greater than that of the LN profile [$est = 8.08$, $SE = 0.54$; LN vs. HN: $p < .001$, $g = 0.59$; LN vs. MNS: $p = .019$, $g = 0.65$; LN vs. MNR: $p < .001$, $g = 0.83$]. No other significant differences emerged between profiles.

Discussion

The purpose of this study was to identify the needs of individuals bereaved following the sudden death of a loved one or close other, to discover the factors that predict patterns of needs, and to examine how bereavement-related needs relate to numerous mental health and grief-related outcomes. Scholars, mental health practitioners, and survivors have reached consensus regarding the importance of clarifying the needs of sudden and/or violent losses (e.g., Cerel, Neimeyer, & Maple, 2017; Feigelman, Feigelman, & Range, 2017). This call extends beyond mere elucidation of the mental health challenges associated with these tragic forms of loss and presuming needs based on these outcomes (e.g., Mcmenamy, Jordan, & Mitchell, 2008). To the best of our knowledge, this study is the first to identify specific bereavement-related needs, and their association with numerous mental health and grief-related sequelae, among a sample of sudden loss survivors. Using LPA among a heterogeneous sample of sudden loss survivors, four subgroups of participants were identified with regard to patterns of bereavement-related needs: a low needs group (LN), a moderate needs-spiritual (MNS) group, a moderate needs-relational (MNR) group, and a high needs (HN) group.

Need Categories in Each Class

Based on our results, approximately one-fifth (20.4%; $n = 71$) of participants comprised the LN group. Within this group, individuals reported the lowest levels of importance of meaning making, informational, emotional, and pragmatic needs. Although relational needs were indicated as being of low importance in the LN group, this was comparable to the MNS group, whereas the relatively low spiritual needs in the LN group were similar to that of the MNR group. The MNS group had the lowest proportion of participants (10.3%; $n = 36$) and reported that meaning making, informational, emotional, and pragmatic needs were moderately important, whereas spiritual needs were rated as highly important. The importance of spiritual needs in this group was significantly greater than all other groups. Perhaps leaning on their faith orientations more readily than other groups of mourners, individuals in the MNS group rated relational needs as being of low importance, consistent with levels in the LN group.

More than one-fourth (28.2%; $n = 98$) of the sample comprised the MNR group. Individuals in this group indicated that meaning making, informational, emotional, and pragmatic needs were of a similar level of importance compared to those in the MNS group. However, the level of importance across these four categories of need was significantly greater than individuals in the LN group. Survivors in the MNR group indicated the lowest level of spiritual needs compared to any other group, but viewed being around individuals with a similar experience of loss as important, differentiating this class from the LN and MNS groups in terms of relational needs. The largest proportion of survivors in the sample were placed in the HN group (40.1%; $n = 142$). Individuals in this group endorsed markedly greater levels of need than other groups. In particular, making sense of and finding benefit in the loss, receiving information about the grief experience, processing grief-related emotions, engaging in practical and life-

enhancing activities, and being with others who have faced a similar loss were of great importance in the HN group, and significantly greater compared to all other groups. These results are consistent with qualitative studies that examined the needs of individuals following a sudden fatal cardiac event of a loved one (Wisten & Zingmark, 2006), as well as those following a suicide loss (e.g., Bottomley et al., 2018) in which the bereaved identified needing more information about *why* the loved one died in order to assist them during the grieving process. Although spiritual needs were ranked as moderately important, and were significantly greater than the LN and MNR groups, they were significantly lower compared to the MNS group. Emotional needs, on the other hand, appeared to be equally important for the moderate needs groups (MNS and MNR), though of greater importance to the HN group and lower in the LN group, respectively. The low importance of emotional needs in the LN group can be understood when considering other relatively low levels of need across the other categories, such as meaning making and relational needs. When individuals contending with a loss are able to reconstruct a world of meaning, particularly when the death was sudden, adaptation is generally more seamless (e.g., Neimeyer, 2019), producing less bereavement-related needs. The finding that a proportion of individuals in the current sample view meaning making, relational, and emotional needs as being of little importance suggests that the death occurred in a manner that was consistent with the survivor's broader narrative of loss or understanding of the world.

Interestingly, and consistent with the understanding that loss has the potential to negatively impact various domains of life sustaining behaviors (e.g., sleep, exercise; Hardison & Neimeyer, 2005; Lancel, Stroebe, & Eisma, 2020), pragmatic needs were rated as being of moderate to high importance regardless of the need class. Participants in our sample nearly unanimously endorsed the importance of eating well, exercising regularly, and improving sleep,

among others, as they continued to grapple with the death of a close other. The need to address these pragmatic issues in the context of loss, regardless of the manner of death, is reflected in Rubin's (1999) Two-Track Model of Bereavement. In this theory of bereavement, the loss response is conceptualized along two distinct but interactive axes, with one "track" being devoted to the attachment-oriented concerns of loss while the other addresses the biopsychosocial functioning of the mourner. Among other tasks, in this latter track, the individual grieving a death attempts to manage interpersonal relationships, work, and an investment in life tasks (e.g., eating, sleeping, exercise) in a balanced fashion (Rubin, 1999). This study provides further support for the need to attend to personal tasks, such as self-care, that cuts across demographic and loss variables.

Predictors of Needs Classes

Regarding the composition of each needs class, a number of notable patterns emerged. For example, participants in the HN group were significantly older than all other groups and more likely to be female, while the LN group had the lowest proportion of females compared to all other groups. This finding is unsurprising given that research consistently indicates that being in an older age group and identifying as female are risk factors for complicated grieving (Shear, Ghesquiere, & Glickman, 2013), and are thus likely to endorse a higher degree of needs. Also of note, individuals in the LN group reported the lowest levels of pre-death closeness to the decedent relative to all other groups, with the HN group reporting the highest level of closeness to the decedent. This finding is congruent with the bereavement literature that suggests challenges arising from the death of a loved one, and by default, increasing levels of bereavement-related needs, are likely to reflect the degree of closeness between the mourner and decedent, regardless of kinship category (e.g., Cerel, Maple, & van de Venne, 2017, Servaty-

Seib & Pistole, 2007). Additionally, individuals reporting a more recent loss were more likely to belong to the HN group compared to the LN group, which supports previous research findings that grief difficulties are more acute in the early months following a loss, and are likely to diminish over time for a majority of mourners (e.g., Feigelman, Jordan, & Gorman, 2008; Schwartz, Howell, & Jamison, 2018).

The mode of loss, particularly whether the death was violent or volitional in nature, appeared to be associated with class membership. The HN and MNR group were predominately comprised of suicide loss survivors, with 52.1% and 52.3% of those groups losing a loved one or close other to suicide, respectively, while 22.5% and 27.8% of the LN and MNS groups, respectively, were suicide loss survivors. Moreover, after adjusting for pre-death closeness, time since the loss, gender, and ethnicity, results indicate that suicide loss survivors were approximately seven times and nearly five times more likely to be in the MNR group than the LN or MNS group, respectively. Additionally, suicide loss survivors were nearly seven times more likely to be in the HN group compared to the LN group, and four times more likely to be in the HN group than in the MNS group, after controlling for the aforementioned covariates. It is well understood that losing a close other to violent and volitional means, such as suicide, is distinguished from other forms of sudden loss given its ability to shatter some of the most fundamental assumptions of life, ushering mourners into a process of having to make sense of the decision of the decedent (e.g., Bottomley et al., 2018). As such, the fact that approximately half of the HN group, where meaning making needs were rated as highly important, were comprised of suicide loss survivors is unsurprising. Furthermore, the findings presented here reflect those found by Wilson and Marshall (2010) in which 94% of survivors of suicide loss in

their sample indicated a need for assistance in order to better address grief-related problems, with the majority of survivors indicating a “great or significant” need for help.

Like suicide loss survivors, individuals who lost a loved one to opioid-related overdose, a similarly sudden and seemingly volitional loss, primarily fell into the MNR or HN group. Over a quarter of the MNR group, and greater than a third of the HN group, was comprised of opioid-loss survivors, while only a tenth of the LN group included mourners of this form of loss, suggesting a moderate to high endorsement of needs among individuals bereaved by this form of sudden loss. In fact, overdose loss survivors in the sample were 10 times more likely to be in the HN group, and seven times more likely to be in the MNR group, than in the LN group, respectively. In addition, opioid-loss survivors were approximately three times more likely to be in the HN group than the MNS group, revealing an overall pattern of high need in this population. This finding is consistent with literature that suggests that grieving an unexpected overdose poses significant challenges that necessitate additional resources and support in the wake of a loss that is often considered both traumatic (e.g., sudden and violent nature of the death, possibility of discovering the body) and stigmatizing (Templeton et al., 2016). It has been suggested that the grief of individuals contending with the sudden death of a close other due to overdose is often “devalued” as a result of the decedent engaging in behavior that is morally and socially objectionable (Valentine, Bauld, & Walter, 2016). This broad societal stance may then stifle the public response and limit resources, making needs among this group of sudden loss survivors especially glaring. Often times, the decedent had a history of protracted drug use, with corresponding emotional and financial implications that pre-date the death (Feigelman, Feigelman, & Range, 2018). As such, many drug death survivors may have had a moderate to

high level of need in responding to the pre-death drug-related behavior that then exacerbated or compounded needs in the context of loss.

Given the fact that survivors of suicide and opioid loss predominately fell into the MNR or HN groups, bereavement-related needs may be similar between these two sudden loss groups. Research suggests that violent or volitional losses are associated with high levels of trauma, is socially stigmatizing, eliciting “disenfranchisement” (e.g., Doka, 2001), and begets existential challenges as the mourner often seeks to comprehend *why* and *how* the death occurred (e.g., Bottomley et al., 2018; Guy & Holloway, 2007). Although a need to know *why* or *how* the death occurred is endorsed by other sudden loss survivors (e.g., sudden cardiac arrest; Wisten & Zingmark, 2006), survivors of a sudden and possibly volitional death may view making sense of the death as a chief task (e.g., Bottomley et al., 2018), including understanding the circumstances of the death *and* the decedent-mourner relationship more fully, as well as to reflect on aspects of their own identity, and occasionally to find a sort of benefit in the loss (i.e., silver lining). All of these meaning making needs were prominent in both the MNR and HN groups. Furthermore, as a result of high levels of perceived and actual stigma within these two groups of sudden and violent loss survivors, (Feigelman, Jordan, & Gorman, 2009), mourners often seek individuals with shared experience through the use of peer support groups (Feigelman & Feigelman, 2008). With the vast majority of suicide and opioid-loss survivors comprising either the MNR or HN classes, which rate the importance of relational needs as being much higher than the other two classes, it stands to reason that many violent loss survivors seek the companionship of others with a similar experience, particularly when the cause of death was volitional. Being with others who have experienced a similar sudden and violent loss might assist survivors’ efforts to better

comprehend the circumstances of the loss, as well as the often-bewildering course of grief that follows in its wake (Feigelman & Feigelman, 2008).

Mental Health and Grief-Related Outcomes Among Classes

The final aim of the current study was to examine the mental health and grief-related outcomes that are associated with the identified needs classes, after adjusting for a number of important covariates. Overall, results of this study suggest that patterns of bereavement-related needs, both based on type and importance, are associated with mental health and grief-related outcomes. Furthermore, the findings presented here indicate that the violent nature of the loss may also be associated with particular outcomes based on the loss characteristics of individuals in each needs class.

Complicated Grief Symptoms

Regarding CG symptomatology, results indicated that the HN group had significantly greater levels of CG symptoms and grief-related impairment compared to the LN and MNS groups. However, no significant differences emerged between the HN and MNR group. When considering the composition of the MNR and HN groups, results shed light on the inconsistent literature regarding levels of CG among survivors of various forms of loss. In a study of individuals seeking treatment for CG following natural, sudden, or violent loss, Tal and colleagues (2017) were unable to identify significant differences by loss type on symptoms of complicated grief, suggesting that although survivors of violent loss may face unique thematic challenges, they do not appear to be distinguished from other survivors in terms of complicated grieving. However, other studies have suggested that individuals bereaved following a violent loss, such as suicide, may be at greater risk for CG symptoms compared to individuals grieving the death of a close other to non-violent means (Jordan, 2008), even when those losses are also

sudden in nature (Shear et al., 2011). For example, in their study of CG in the context of suicide bereavement, Mitchell and colleagues (2004) reported that 43% of their sample met criteria for CG, a rate that is four times the rate found in the general population following losses of all kinds. Given that the HN and MNR groups were predominately comprised of survivors of suicide and opioid-related loss, our finding of significantly greater levels of CG in these groups compared to the other classes help to confirm that symptoms of CG may be greater among survivors of violent loss compared to losses that are natural but sudden in nature (e.g., sudden cardiac arrest). Although literature on the mental health sequelae following opioid-related overdose loss is nearly non-existent, these findings are consistent with the only study that compared CG symptom severity between suicide and overdose loss survivors and found no significant differences (Feigelman, Jordan, McIntosh, & Feigelman, 2012). Given the finding of similar patterns of needs and corresponding outcomes among suicide and overdose loss survivors in the present study, as well as the paucity of literature on overdose loss, future research should systematically examine the prevalence of CG in overdose loss survivors, particularly in comparison to the suicide bereaved, to further confirm or disentangle areas of symptomatic overlap between these two forms of sudden loss.

Beyond loss type, elevated CG symptoms in the HN and MNR groups can also be understood through a lens of meaning making needs. Meaning making needs were highest among the HN and MNR groups, and research has consistently shown that an ability to make sense of a loss, integrating it into a coherent narrative of self and the world, serves as a buffer against complicated grieving (Milman et al., 2019), particularly when losses are sudden and violent (Currier, Holland, & Neimeyer, 2006). Therefore, elevated CG symptoms among the HN and MNR classes, comprised of individuals who rated meaning making needs as highly

important, is consistent with the extant literature that identifies meaning making as both a proxy and conduit for psychological adjustment following loss. These findings further support the importance of meaning reconstruction in the wake of loss, particularly among individuals following the sudden and violent death of a loved one. Future investigations should examine the degree to which meaning making needs are met through engagement with various support systems and coping strategies throughout the course of bereavement, using large, representative samples to help confirm the role of meaning making in sudden bereavement, particularly among overdose loss survivors.

PTSD Symptomatology

Significant differences in PTSD symptoms were identified among the different bereavement need classes, with the HN group evidencing markedly high levels of PTSD symptomatology compared to all others. With approximately 88% of the HN group being comprised of violent loss survivors, this finding is unsurprising and largely consistent with the literature that has identified symptoms of traumatic stress following the sudden violent death of a close other (e.g., Mitchell & Terhorst, 2017; Sami et al., 2019). For example, in an epidemiological study conducted by Erlangsen and colleagues (2017), survivors of a spousal suicide had a six-fold risk for PTSD compared to others who had lost a spouse due to other causes. However, it should be noted that this finding was likely influenced by relationship factors between the mourner and decedent, and indeed, studies have identified closeness to the decedent as a strong predictor of traumatic stress reactions among the suicide bereaved (Cerel et al., 2017). Further highlighting the role of violent loss, Zisook, Chentsova-Dutton, and Shuchter (1999) found comparable rates of PTSD among spouses grieving a suicide or accident death (36% meeting criteria for PTSD) while rates of PTSD in other modes of natural unexpected loss were

between 9 and 10%. Despite these findings, other studies have suggested that few differences exist between survivors of suicide and other mourners in terms of PTSD symptomatology. The results identified here, in which PTSD symptoms were significantly elevated among the HN group, which included an overwhelming majority of suicide and overdose loss survivors, contribute to the debate regarding differential levels of PTSD symptoms among the suicide bereaved relative to other modes of traumatic loss. For example, in their systematic review of the literature comparing survivors of suicide and other modes of loss in terms of PTSD, Sveen and Walby (2008) concluded that differences in traumatic stress reactions among survivors of various forms of loss may not be significantly different, or are at least better explained by other variables such as relationship or death-related factors (e.g., discovering the body, method of suicide). Our findings, in part, support the results of Sveen and Walby's review in that levels of traumatic stress may be higher among survivors of violent forms of loss when compared to sudden, albeit natural loss. However, given that literature is substantially lacking in terms of investigating PTSD symptomatology among some violent loss populations, namely individuals bereaved by an overdose death, these results would benefit from confirmation through additional research that aims to assess levels of traumatic stress reactions and rates of PTSD among overdose loss survivors, especially when compared with individuals bereaved by other modes of sudden and violent death.

Suicide Risk

An exceptionally unfortunate outcome that is associated with bereavement (e.g., Sami et al., 2019), particularly when bereavement is characterized by markedly high levels of CG and PTSD symptomatology (e.g., Mitchell et al., 2005, Molina et al., 2019), is suicidal behavior. Results from the current study revealed that individuals in the HN group were significantly more

vulnerable to suicide compared to the other needs groups, and with CG severity being highest in this class, this finding supports the association between CG and suicide risk in the extant literature (e.g., Latham & Prigerson, 2004). Furthermore, suicide loss survivors accounted for over half of the HN group, reinforcing findings from other studies that identify sudden loss, and suicide bereavement in particular (e.g., Hamdan et al., 2020), as potent risk factors for subsequent suicide. In a recent review of suicide ideation among individuals grieving the death of a close other due to various sudden and violent modes of loss, Molina and colleagues (2019) found that among the suicide bereaved, rates of suicidal ideation ranged between 14 and 50%, providing further evidence that losing a close other to suicide may independently confer risk for the survivor. Unfortunate but perhaps unsurprising given the dearth of literature on this population, Molina and colleagues failed to identify a single study that included an analysis of suicide potential among individuals bereaved by drug overdose. As such, the authors implored future research to examine this burgeoning, yet vastly understudied, population in relation to suicide risk and behavior (Molina et al., 2019). Our finding of significantly greater levels of suicide risk in the HN group, close to 40% of which was comprised of overdose loss survivors, suggests that this may also be a population that experiences markedly high levels of suicidal ideation and behavior and thus warrants empirical attention. However, until future research examines the prevalence of suicide risk among opioid-loss survivors, asserting the extension of suicide risk to those grieving an overdose-related death can only be done theoretically.

Greater suicide risk in the HN group can also be explained through an examination of the needs that were rated as highly important among individuals in this class. For example, more than any other group, the HN group rated meaning making needs as being of great importance, and meaning making and suicide risk have been associated in previous studies. Using semi-

structured in-depth interviews, Milkin and colleagues (2019) attempted to explore the mechanisms with which the transference of suicide occurs between the decedent and the bereaved. Data derived from this qualitative study suggested that how individuals make sense of their loss influences whether suicide is perceived as “thinkable” and “more doable” (Milkin et al., 2019). Similarly, individuals bereaved by a suicide death in other studies have reported “changed orientations” toward suicide, either making suicide a more tangible and normalized option that begets vulnerability, or are determined to avoid suicide as a result of bearing witness firsthand to the damage it wreaks on the survivor (Pitman et al., 2017). Elevations in suicide risk in the HN group can also be explained by the importance of relational needs in this group. According to Wisten and Zingmark (2007), individuals bereaved following a sudden natural loss endorsed the need to garner consistent emotional support from others in an effort to avoid isolation—a powerful predictor of suicide risk (e.g., Calati et al., 2019). Relatedly, given the stigma associated with suicide and drug use, mourners following these types of sudden death often find themselves isolated (e.g., Feigelman, Gorman, & Jordan, 2009; Valentine, Bauld, & Walter, 2016), whether prompted by the mourner or by society. In turn, survivors desire to be with individuals who experienced a similar personal tragedy or to candidly share grief-related thoughts and feelings with compassionate others. In fact, research indicates that suicide and overdose loss survivors report absent or diminishing social support in the wake of loss (e.g., Hanschmidt, Lehnig, Reidel-Heller, & Kersting, 2016; Jordan, 2001; Templeton et al., 2016), which could further explain increased suicide risk in the HN group. Taken together, the importance of making meaning of the loss and social connectedness is highlighted in the context of the propagation of suicide, and thus supports our findings of the importance of meaning

making and relational needs among individuals who were at greatest risk for suicide in the current study.

Depression and Anxiety

Consistent with our findings of more deleterious outcomes among individuals in the HN group (CG, PTSD, and suicide risk), depressive and anxiety symptoms were found to be elevated compared to nearly all other groups, with the exception of anxiety symptoms exhibited in the MNR group. When examining the composition of the HN and MNR groups in terms of the mode of loss, a trend emerges suggesting that individuals confronted with sudden and violent loss may be vulnerable to depressive and anxiety symptomatology, which both aligns with and departs from the extant literature that largely focuses on violent losses through suicide. For example, in a recent and large digital study, individuals that were exposed to a suicide death had an increased prevalence of depressive and anxiety disorders compared to those who were not exposed (Cerel et al., 2016). Similarly, in a large, longitudinal study of bereavement, elevated rates of mood and anxiety disorders were found among individuals whose spouse died due to violent means (e.g., suicide) compared to other modes of loss (Erlangsen et al., 2017). However, other studies have identified results that depart from these findings. In their systematic review, Sveen and Walby (2008) identified 23 studies that examined differences in depressive symptoms between suicide loss survivors and individuals bereaved due to other modes of loss and found that only four studies reported significant differences, suggesting that sudden and violent losses may share many adverse outcomes. One of those studies supported this notion, as accident survivors had significantly greater depressive symptoms than any other form of sudden loss (Cleiren, 1993). With regard to anxiety, the Sveen and Walby (2008) review identified six studies that investigated differences between the suicide bereaved and other mourners and found

that two reported significant differences. Based on these findings, Sveen and Walby (2008) concluded that no support was found in their systematic review to confirm the existence of differences between violent loss experiences in terms of mood and anxiety-related sequelae. Other more recent reviews have suggested that differences in mental health outcomes, such as depression and anxiety, between sudden and violent loss survivors are indeed equivocal, and likely are influenced by the nature of the relationship. For example, in a large systematic review by Pitman and colleagues (2014), no differences were found in terms of depression among spouses bereaved by any type of death (e.g., sudden, violent). Conversely, parents bereaved due to a fatal motor vehicle accident of their offspring were significantly more vulnerable to depression compared to suicide bereaved parents, and no differences were found between siblings of a violent death compared to natural deaths. However, young children of parents who have died by suicide had higher rates of depression than children bereaved by the death of a parent due to other causes, with interacting effects for whether it was a mother or father who died by suicide in older surviving children. Although consensus has yet to be reached regarding the vulnerability to mood and anxiety disorders among violent loss survivors relative to all other modes of loss, results described here help to shed light on this debated topic. Further, our results suggest that suicide loss and opioid-related loss survivors may be at heightened risk for depressive and anxiety symptomatology compared to other sudden losses, but future research should clarify these provisional findings.

With regard bereavement-related needs, our findings appear to be consistent with the literature that acknowledges the importance of the ability to integrate stressful events into one's understanding of self and the world, the role of emotional disclosure, and the significance of receiving pragmatic support in the wake of loss and other life adversities in combatting mood

and anxiety-related outcomes. For instance, in a large, longitudinal study of cancer patients, global meaning and meaning-related life attitudes (e.g., making sense of the diagnosis, death acceptance) at baseline were predictive of diminishing depressive and anxiety symptoms 3 months later (Vehling et al., 2011). Additionally, in a study examining meaning making as a possible mechanism of change in mood and anxiety-related symptoms during the provision of cognitive-behavioral therapy, meaning in life and meaning made of life transitions was found to be a partial mediator of reductions in anxiety and depressive symptoms (Marco, Alonso, & Baños, 2020). With regard to pragmatic support, in a longitudinal study of survivors of homicide loss, satisfaction with received instrumental support (e.g., assistance with child care, providing meals, or running errands) prospectively predicted reductions in depression and anxiety, above and beyond all other forms of support (Bottomley, Burke, & Neimeyer, 2017). With pragmatic support being viewed as significantly more important in the HN group—a group that experienced the highest levels of mood and anxiety-related symptoms compared to all others, our findings lend support to previous research that has identified instrumental forms of support as being uniquely important to the prevention of depressive and anxiety symptoms.

Meaning Making

Individuals in the LN group reported the greatest levels of successful meaning making of the loss, indicating that these bereaved individuals were more able to make sense of their loss, find an unsought benefit in it, or retain a stable identity in the wake loss relative to other groups. The majority of individuals in the LN group had experienced the death of a loved one to due to sudden but natural means. As such, it's possible that although these deaths were tragic and unexpected, they may have fit a natural order in which one's poor health or age, in combination with the manner of death (e.g., heart disease and subsequent acute myocardial infarction,

intracranial hemorrhage), did not shatter fundamental assumptions of life in the way that other violent modes of loss might (e.g., suicide, fatal overdose). Interestingly, although the LN group had significantly greater levels of meaning making, few differences were found among the other groups. This could be due to the fact that sudden losses of all kinds have the capacity to rupture one's understanding of the world and can require the reformulation of one's identity, as would be the case in the sudden death of a spouse or child (e.g., Coleman & Neimeyer, 2010; Wheeler, 2001). Although one might expect that meaning making would be low in the MNR and HN groups, which were predominately comprised of individuals grieving the violent death of a close other, research has shown that meaning reconstruction is indeed possible in the context of these profound forms of loss (e.g., Bottomley et al., 2019). For instance, in a longitudinal qualitative study of suicide loss survivors, participants described a protracted search for "why" the suicide occurred in the first six months following the death (Ross, Kölves, Kunde, & De Leo, 2018), but many reported finding meaning in the loss around the 12-month mark, whether through making sense of the death (e.g., "coming to terms") or through obtaining some unsought benefit, such as personal growth. Similarly, using the Meaning in Loss Codebook (Gillies, Neimeyer, & Milman, 2014), Bottomley and colleagues (2018) identified other various mechanisms and products of meaning making among the suicide bereaved, such as honoring the deceased's wishes or memory, building or establishing an ability to comprehend the loss, or identifying with others mourning a similarly violent and volitional death. The finding of the greater meaning made of the death in the LN group is also consistent with large quantitative studies of meaning made in the context of bereavement more broadly. For example, through the construction and validation of the Grief and Meaning Reconstruction Inventory (Gillies, Neimeyer, & Milman, 2015), it was found that individuals who lost a close other to natural or expected means had higher levels of

meaning making compared to violent modes of loss in the sample (e.g., suicide, homicide). Alternatively, the notion that the HN group had lower levels of meaning making, albeit not significantly different from the MNS group, is consistent with the literature that specifies that violent deaths have a particular ability to shatter the most fundamental assumptions of life, leading to a reduction of comprehension that often requires the mourner to initiate a difficult process of meaning reconstruction (Currier, Holland, & Neimeyer, 2006). Furthermore, with regard to the MNS group, the finding of low levels of meaning making that were comparable to the HN group in the current study reflects research that highlights the complex relationship between religious coping and meaning making. In a study that examined the relation between meaning making and the use of myriad religious coping strategies, negative religious coping, when individuals experience a crisis of faith, was identified as a unique predictor of disruptions in meaning (Lichtenthal, Burke, & Neimeyer, 2011). Spiritual needs were highest in the MNS group, while meaning made of the loss was relatively low, suggesting the possibility that individuals in this group may be struggling with accommodating religious/spiritual beliefs with the reality of the loss, initiating a possible “crisis of faith” and consequently difficulties in meaning making.

Posttraumatic Growth

In addition to meaning making, posttraumatic growth (PTG) has been conceptualized as a proxy for adaptation to loss that indicates some unsought benefit produced by the process of grief. Generally, research has identified the capacity for individuals to experience a positive change in the context of highly stressful events, such as bereavement following numerous types of loss (Engelkemeyer & Warwit, 2008). With relatively similar levels of PTG across the needs groups, the results derived from this study reveal low to moderate levels of PTG among sudden

loss survivors in the current sample. However, an understanding of the composition of bereavement-related needs, as well as individual and death-related factors, within each of the identified needs classes can help explain the minor discrepancies in PTG scores. For example, the MNS group, which is comprised of individuals with high spiritual needs and likely with stronger religious affiliations, evidenced the largest levels of PTG in the current sample, which is consistent with literature that indicates that bereaved individuals attending religious services with regularity report greater levels of PTG in the wake of a sudden loss (Currier, Mallot, Martinez, Sandy, & Neimeyer, 2013; Feigelman, Jordan, & Gorman, 2009). Alternatively, results may reflect research that has found that aspects of spirituality prime individuals for PTG in the wake of numerous stressors and life transitions (e.g., Shaw, Joseph, & Linely, 2005). Additionally, greater levels of time since the loss were associated with an increased likelihood of belonging to the MNS group in the current sample, which might further explain the significantly greater levels of PTG among individuals in this group, as elapsed time since the death has been a consistent and significant predictor of PTG in the context of sudden loss (e.g., Engelkemeyer & Marwit, 2008). However, the findings presented here of little discernable differences in PTG across needs groups are somewhat inconsistent with research that identifies greater levels of PTG among survivors of violent deaths compared to those who had lost a loved one due to nonviolent means (Currier, Mallot, Martinez, Sandy, & Neimeyer, 2013). Lower levels of PTG in the LN group can also be explained with regard to the low level of importance placed on meaning making needs in this group. Consistent with the concept of meaning making, the experience of psychological turmoil instigates a review and possible revision of meaning systems and personal growth through staunch adversity (e.g., Calhoun et al., 2010; Neimeyer & Sands, 2011). PTG is thought of as emerging from an attempt on the part of the bereaved to reorganize or assimilate

their beliefs to better cohere to the grief experience, and as such, without some degree of discrepancy between meaning systems and circumstances of the loss, the bereft are less likely to engage in the necessary processes for substantive positive changes to occur (e.g., Park 2010). Therefore, the finding of diminished importance of meaning making in a group that also experienced low levels of PTG is congruent with extant research and theory on PTG. Future research should nevertheless compare levels of PTG among various forms of sudden and violent loss at numerous timepoints during bereavement, ideally with longitudinal designs, to further elucidate differences and predictors of PTG among survivor groups. Furthermore, given the dearth of literature on overdose loss survivors, a segment of mourners that were highly represented in the MNR and HN classes, particular attention should be placed on PTG in the context of grief following opioid-related deaths.

Thematic Elements of Grief

Results of the current study indicate significantly greater levels of grief-related stigma and perceived rejection in the HN group when compared to all other groups. The violent and seemingly volitional nature of the losses represented in the HN group are likely the reason for these elevations. Although research is limited with regard to the bereavement experience following an overdose death, results from qualitative studies suggest that survivors of overdose loss may grapple with high levels of societal and self-directed stigma, perceived rejection, and shame (Templeton et al., 2017). These same elements have also been recognized as emblematic of suicide loss (e.g., Jordan, 2001) and consensus appears to be established with regard to suicide loss engendering greater levels of “thematic” difficulties whereas distinctions in other outcomes (e.g., CG, depression, anxiety) between suicide and other forms violent and sudden loss appear more ambiguous (Pitman, Osborn, King, Erlangsen, 2014). For example, numerous qualitative

investigations of suicide survivorship have noted levels of stigma to be a chief challenge (e.g., Bottomley et al., 2018), and quantitative reviews of the literature have consistently identified stigma as being uniquely high in this population (e.g., Sveen & Walby, 2008). In a recent systematic review (Hanschmidt, Lehnig, Riedel-Heller, & Kersting, 2016), suicide survivors experienced greater levels of stigma compared to individuals bereaved through other means of death. Findings of this review identified reduced psychological and somatic functioning and social withdrawal as being strongly associated with stigma, which is consistent with results found in this study of high levels of stigma associated with the importance of pragmatic and relational needs, respectively. Therefore, the results presented here not only are consistent with the literature describing suicide loss as a particularly challenging experience resulting from levels of stigma, rejection, guilt, and shame, but also provide quantitative support that individuals bereaved due to an overdose loss may confront palpable social and self-directed stigma, likely more so than other forms of sudden but natural loss. Future research should further explore these thematic grief elements in survivors of overdose loss, particularly in comparison to other violent or volitional losses (i.e., suicide) to further elucidate levels shame, guilt, and stigma within this population, as these elements may be a main mechanism of deleterious outcomes.

The high levels of stigma and perceived rejection can also be understood through the importance of needs endorsed by individuals in the HN group. For example, the HN group significantly differed from all others in terms of relational needs, which is consistent with the understanding that survivors of violent and volitional loss seek out the companionship of those who have experienced a similar death as a result of profound levels of societal stigma, both actual and self-imposed (Feigelman, Gorman, & Chastain Beal, 2008). Using mutual aid theory to explain how survivors' healing is facilitated through the utilization of peer support groups,

Feigelman and Feigelman (2008) suggested that peer support decreases marginalization, allowing survivors to offer important mutual aid, helping their peers to adjust to the unique challenges of a salient sudden and violent death. Meaning making needs were highest among individuals in the HN group, which helps to explain increased levels of perceived rejection in this class as well. When a death is violent and seemingly volitional, the capacity for the death to undermine one's understanding of the decedent, and their relationship with them prior to the death, is strengthened (Currier, Holland, & Neimeyer, 2006). As such, a process of meaning reconstruction, in which the bereft seek to make sense of and understand the consequences of the death, and the factors leading up to it, often ensues. For example, making sense of the death and other components of meaning reconstruction were found in Supiano and colleagues' (2017) research with suicide loss survivors in the context of group therapy. Although the reality of the death event did not change, as group therapy progressed, participants were able to reframe the suicide death of their loved one within a broader framework of mental illness, leading to an alteration in perceptions of being somehow implicated in the death, and a renewed focus on more satisfying memories that affirmed the deceased and their legacy. With regard to the current findings, the fact that meaning making needs were rated as highly important in a group with the greatest levels of perceived rejection is understandable and consistent with literature that broadly illustrates disruptions to meaning systems in the wake of violent and volitional death (Neimeyer, 2016).

Clinical Implications

The findings of the current study highlight a number of clinical considerations. First, and perhaps most obviously, results indicate that individuals bereaved due to sudden causes are vulnerable to a number of complications and provision of formal and informal support should

therefore be prioritized. Further, these findings suggest that bereavement complications can be understood and likely ameliorated through the meeting of specific bereavement-related needs. For example, when meaning making needs were rated as highly important, corresponding deleterious outcomes were observed. In contrast, when meaning making needs were viewed as of low importance, deleterious outcomes were rare. As such, formal interventions should aim to assist the mourner with the process of meaning reconstruction in an effort to promote adjustment. Therapy aimed at directly promoting the process of meaning reconstruction has garnered empirical support and displayed evidence of efficacy in promoting adaptation to loss. For example, Meaning-Centered Grief Therapy (Lichtenthal et al., 2019), a 16-session, manualized cognitive-behavioral-existential intervention, was shown to be associated with improvements in psychological functioning (e.g., CG symptoms, sense of meaning, PTG, health-related domains) in an open trial for parents bereaved by the cancer death of their child. Furthermore, more generalized interventions not directly aimed at promoting meaning reconstruction among the bereaved (e.g., Cognitive Behavior Therapy; CBT) appear to have done so obliquely through the ongoing construction of the relationship with the deceased throughout the process of therapy (Fleming & Robinson, 2001), highlighting the importance of meaning making regardless of the form or structure of the intervention provided.

Results of this LPA also indicate that the degree of importance of pragmatic needs was directly related to negative sequelae, consistent with other studies examining instrumental or practical support in the context of sudden, violent loss (e.g., Bottomley, et al., 2017). Survivors then should attempt to seek out forms of instrumental support that will allow them to allocate energy and resources more efficiently from life-sustaining requirements (e.g., cooking meals, errands, child care) to grief-related tasks. However, doing so may be difficult as a result of actual

and perceived stigma associated with forms of violent or volitional loss, as well as the pull toward isolation inherent in all forms of loss that has been consistently reported in the literature (e.g., Breen & O'Connor, 2011). Therefore, therapists working with the bereaved as well as supportive others should assist the bereft in seeking support that is practical and tangible, providing an opportunity to balance life and grief-related obligations. In fact, this undulation between life and grief-related tasks is consistent with the oscillation between loss-oriented and restoration-oriented work in Stroebe and Shut's (1999) Dual Process Model of Coping with Bereavement. Other forms of evidence-based practice may also show some promise among the suddenly bereaved based on the current findings. For example, Psychological First Aid (PFA) is an intervention that aims to promote connection with social supports and provide practical assistance, among other important components, that is typically delivered in the acute aftermath of numerous forms of trauma (Uhernik & Husson, 2009). Recently, PFA has shown superior efficacy to usual services among a sample of 172 crime victims, including survivors of violent loss, in terms of psychiatric and adaptive functioning (McCart, Chapman, Zajac, & Rheingold, 2020). Although PFA may be appropriate for individuals in the acute aftermath of a sudden loss, particularly with regard to obtaining and receiving social and pragmatic forms of support, more research should be conducted with PFA in the context of sudden bereavement before concluding its efficacy in these populations of mourners with these specific bereavement-related needs.

Beyond matching interventions to the specific needs that bereaved individuals view as important in their adaptation to loss, special attention seems warranted for survivors of violent loss, such as suicide and opioid-overdose loss, as the findings presented here indicate that a substantial proportion of individuals in these populations appear to be at an elevated risk for deleterious outcomes including complicated grief, PTSD, suicidality, and affective disorders. For

years, researchers and clinicians alike have been calling for increased attention to suicide loss, including identifying or developing interventions that can address the unique features inherent following these types of death (e.g., Jordan, 2001; Neimeyer, Cerel, & Maple, 2017). More recently, and recognizing the severe lack of research focused on the bereavement experience and process of adaptation following overdose loss, others have extended this call to include opioid-related loss given its burgeoning prevalence and seeming overlap with suicide loss in terms of qualitative features of grief (Valentine, Bauld, & Walter, 2016). Indeed, research is slowly beginning to examine grief interventions for the suicide bereaved but early evidence has yielded mixed reviews based on methodological issues or a lack of efficacy. For example, a recent review found only seven intervention studies, two based on cognitive-behavioral treatment paradigms, four consisting of peer groups, and one that utilized writing therapy, the majority of which displayed some initial efficacy on at least one marker of adaptation to the loss, but nearly all had methodological flaws that limited a deeper understanding of the impact of the interventions (Linde, Tremi, Steinig, Nagl, & Kersting, 2017). Nevertheless, interventions that indicate initial promise include those that are supportive, educational, and involve improving social ties of the bereaved, and in group support interventions, include sessions that are led by trained facilitators (Andriessen et al., 2019). Although not specifically tailored for violent loss survivors, one treatment approach that has shown early promise in the context of group therapy is Complicated Grief Therapy (CGT; Shear et al., 2005). Components of this group therapy, which were adapted and tested by Supiano, Haynes, and Pond (2017), include, among other components, retelling the story of the death, memory work, and facilitated imaginal conversations with the decedent. In theory, these components of CGT may be especially efficacious as survivors have an opportunity to process the violent and potentially traumatic

nature of the death (via retelling of the story of the death), honor decedents in a way that acknowledges their life and legacy, not just the way they died (e.g., Bottomley et al., 2018), and make sense of and possibly resolve ruptures or ambiguity in the pre-death relationship that may help to facilitate meaning making more broadly. Furthermore, in addition to addressing grief-related complications through formal intervention, basic safety enhancing measures should be considered. For example, the high degree of suicide risk among needs groups that were predominately comprised of individuals bereaved by a sudden violent loss indicates that risk is a facet of the bereavement experience that appears to be heightened among these mourners, and should be of paramount importance to clinicians. As such, a thorough screening for suicidality should be conducted at the outset of any grief-related treatment in this population, and a thorough risk assessment should be conducted when indicated. When risk is indeed elevated, this should become the priority of the clinician until suicidality is stabilized and risk deemed low, at which point in time grief-related therapy can commence.

Limitations of the Current Study

As this study is the first of its kind to examine the needs and associated outcomes of sudden and violent loss survivors, a number of limitations should be addressed. First, the current study did not include all possible forms of sudden death. As such, extension of these findings to individuals bereaved due to other sudden forms of loss, such as accident, homicide or mass violence events, and natural disasters should be done with caution. Future research examining the bereavement-related needs and associated outcomes of sudden loss mourners should be more exhaustive and include these aforementioned groups, among others. Furthermore, the current study did not include information regarding the perceived intentionality of the death, which may have influenced the current results. Overall, we were most interested in how the bereaved

defined the death, and as such, participants were able to identify the mode of death for themselves. Nevertheless, it is entirely plausible that differences identified in this study between the needs groups and their corresponding outcomes might have been attenuated if we were able to adjust for the perceived intentionality of the death, as when survivors might have considered a drug overdose completely volitional. Additionally, the majority of individuals in the current sample who reported losses due to sudden but natural causes were predominately derived from a convenience sample of young adults. As such, the individuals in this loss group were generally younger, and a substantial proportion had lost a parent or grandparent, which could have influenced the degree of closeness between the mourner and the decedent. Although the kinship category of the decedent did not significantly differ between groups and thus was not included as a covariate in the present study, future research may consider accounting for this factor. Nevertheless, our analyses adjusted for a number of these possible confounds, including the age of the participant and the level of interpersonal closeness prior to the death. Relatedly, a convenience sample was utilized in the current analysis to obtain participants grieving the sudden death of a close other. Although we endeavored to reduce sampling bias by recruiting participants from a variety of sources, the majority of the participants were recruited from national and local advocacy and support organizations. Accordingly, the current sample may experience greater levels of bereavement-related distress relative to individuals who did not seek the assistance of these organizations. Future research should attempt to obtain representative samples using population-based studies when feasible. Doing so will help to mitigate the sampling biases that might have influenced the results reported here. Finally, the current study did not account for previous mental health diagnoses, history of treatment engagement of the participant, or exposure to adverse life events. Differences in outcomes presented here could

have been caused by variations in mental health symptomatology or the cumulative impact of trauma and loss that may have preceded the death. Future studies should assess for previous mental health symptoms, previous mental health treatment, and the number and quality of adverse life events to bolster claims about the relationship between bereavement-related needs and mental health and grief-related outcomes we found and reported on here.

Conclusion

Notwithstanding the aforementioned limitations, the current study fills significant voids in the literature. This study is the first to examine the bereavement-related needs of survivors of sudden loss and the individual, relational, and death-related factors that are associated with these identified needs patterns. Likewise, this study is the first to examine how the importance of needs relate to numerous bereavement and mental health outcomes. Using a person-centered approach, we identified four homogenous classes of sudden loss survivors based on the reported importance of bereavement-related needs. Participants in the low needs group reported that meaning making, informational, emotional, and pragmatic needs were not a strong priority at the time of the assessment. In contrast, participants in the moderate needs-spiritual group indicated that meaning making, informational, emotional, and pragmatic needs were of moderate importance, while spiritual needs were paramount. Similar to the participants in the moderate needs-spiritual group, participants in the moderate needs-relational group indicated that, overall, bereavement-related needs were of moderate importance, but differed substantially from the low needs and moderate-spiritual needs group in terms of relational needs. The vast majority of individuals bereaved by a sudden and violent loss comprised either the MNR or HN class, the latter of which unsurprisingly had the most adverse bereavement-related outcomes after adjusting for a number of covariates, such as time since loss, age, gender, and interpersonal

closeness between the mourner and decedent. In particular, our results support other findings that violent loss is associated with elevated levels of PTSD, suicide risk, depressive and anxiety symptoms, and other thematic grief challenges.

Furthermore, the current study identifies needs that are important, tangible, and reflect modifiable aspects of bereavement that may be amenable to change through psychological intervention (e.g., meaning reconstruction, pragmatic support, emotional disclosure, companionship of mourners of a similar death). Therefore, this study directly addressed the call for research that seeks to examine the needs of sudden loss survivors (e.g., Hansschmidt, Lehnig, Riedel-Heller, & Kersting, 2016; Neimeyer, Cerel, & Maple, 2017). Identifying needs in this manner is critical in order to develop or deliver directed interventions for individuals contending with these tragic forms of loss. Additional research should be conducted to examine the efficacy of intervention packages, or components of evidence-based practice that can be aggregated and provided to individuals bereaved by the sudden death of a loved one. With this study providing a novel understanding of the bereavement-related needs that are unique to and shared among individuals confronted with sudden loss, concerted efforts should be made to develop interventions that meet these needs and promote adjustment to loss. Additionally, research examining the degree to which these needs are met should help further clarify which forms of informal and formal support appear to be most efficacious, and which needs, when met, appear primary in one's ability to produce the greatest degree of adjustment—information that is desperately needed in order to inform the development of future provisions of support.

References

- Agerbo, E. (2005). Midlife suicide risk, partner's psychiatric illness, spouse and child bereavement by suicide or other modes of death: a gender specific study. *Journal of Epidemiology & Community Health, 59*(5), 407-412.
- Andriessen, K., Kryszynska, K., Hill, N. T., Reifels, L., Robinson, J., Reavley, N., & Pirkis, J. (2019). Effectiveness of interventions for people bereaved through suicide: a systematic review of controlled studies of grief, psychosocial and suicide-related outcomes. *BMC psychiatry, 19*(1), 49.
- Asparouhov, T., & Muthén, B. (2014a). Auxiliary variables in mixture modeling: Three-step approaches using M plus. *Structural Equation Modeling: A Multidisciplinary Journal, 21*(3), 329-341.
- Asparouhov, T., & Muthén, B. (2014b). Auxiliary variables in mixture modeling: Using the BCH method in Mplus to estimate a distal outcome model and an arbitrary secondary model. *Mplus Web Notes, 21*(2), 1-22.
- Atwoli, L., Stein, D. J., King, A., Petukhova, M., Aguilar-Gaxiola, S., Alonso, J., ... & Maria Haro, J. (2017). Posttraumatic stress disorder associated with unexpected death of a loved one: Cross-national findings from the world mental health surveys. *Depression and anxiety, 34*(4), 315-326.
- Bailey, S. E., Kral, M. J., & Dunham, K. (1999). Survivors of suicide do grieve differently: Empirical support for a common sense proposition. *Suicide and Life-Threatening Behavior, 29*(3), 256-271.
- Barry, L. C., Kasl, S. V., & Prigerson, H. G. (2002). Psychiatric disorders among bereaved persons: the role of perceived circumstances of death and preparedness for death. *The American journal of geriatric psychiatry, 10*(4), 447-457.
- Barrett, T. W., & Scott, T. B. (1989). Development of the grief experience questionnaire. *Suicide and Life-Threatening Behavior, 19*(2), 201-215.
- Bellet, B. W., Jones, P. J., Neimeyer, R. A., & McNally, R. J. (2018). Bereavement outcomes as causal systems: a network analysis of the co-occurrence of complicated grief and posttraumatic growth. *Clinical Psychological Science, 6*(6), 797-809.
- Berlin, K. S., Williams, N. A., & Parra, G. R. (2014). An introduction to latent variable mixture modeling (part 1): Overview and cross-sectional latent class and latent profile analyses. *Journal of Pediatric Psychology, 39*(2), 174-187.
- Bleed, J. (2007). Howell's life insurance payout not a sure bet. *Arkansas Democrat-Gazette, 19*.

- Boelen, P. A. (2015). Peritraumatic distress and dissociation in prolonged grief and posttraumatic stress following violent and unexpected deaths. *Journal of Trauma & Dissociation*, 16(5), 541-550.
- Boelen, P. A., Reijntjes, A., Djelantik, A. M. J., & Smid, G. E. (2016). Prolonged grief and depression after unnatural loss: Latent class analyses and cognitive correlates. *Psychiatry Research*, 240, 358-363.
- Bottomley, J. S., Burke, L. A., & Neimeyer, R. A. (2017). Domains of social support that predict bereavement distress following homicide loss: Assessing need and satisfaction. *OMEGA-Journal of death and dying*, 75(1), 3-25.
- Bottomley, J. S., Smigelsky, M. A., Floyd, R. G., & Neimeyer, R. A. (2019). Closeness and conflict with the deceased: Exploring the factor structure of the quality of relationships inventory in a bereaved student sample. *OMEGA-Journal of Death and Dying*, 79(4), 377-393.
- Bottomley, J. S., Smigelsky, M. A., Bellet, B. W., Flynn, L., Price, J., & Neimeyer, R. A. (2018). Distinguishing the meaning making processes of survivors of suicide loss: An expansion of the meaning of loss codebook. *Death Studies*, 1-11.
<https://doi.org/10.1080/07481187.2018.1456011>
- Breen, L. J., & O'Connor, M. (2011). Family and social networks after bereavement: Experiences of support, change and isolation. *Journal of Family Therapy*, 33(1), 98-120.
- Brent, D., Melhem, N., Donohoe, M. B., & Walker, M. (2009). The incidence and course of depression in bereaved youth 21 months after the loss of a parent to suicide, accident, or sudden natural death. *American Journal of Psychiatry*, 166(7), 786-794.
- Büchi, S., Mörgeli, H., Schnyder, U., Jenewein, J., Hepp, U., Jina, E., ... & Sensky, T. (2007). Grief and post-traumatic growth in parents 2-6 years after the death of their extremely premature baby. *Psychotherapy and Psychosomatics*, 76(2), 106-114.
- Burke, L. A., & Neimeyer, R. A. (2013). *11 Prospective risk factors for complicated grief* (pp. 145-161). New York, NY: Routledge.
- Burton, A. M., Haley, W. E., & Small, B. J. (2006). Bereavement after caregiving or unexpected death: Effects on elderly spouses. *Aging and Mental Health*, 10(3), 319-326.
- Calati, R., Ferrari, C., Brittner, M., Oasi, O., Olié, E., Carvalho, A. F., & Courtet, P. (2019). Suicidal thoughts and behaviors and social isolation: A narrative review of the literature. *Journal of affective disorders*, 245, 653-667.
- Calhoun, L. G., & Tedeschi, R. G. (2006). The foundations of posttraumatic growth: An expanded framework. *Handbook of posttraumatic growth: Research and practice*, 3-23.

- Calhoun, L., Tedeschi, R., Cann, A., & Hanks, E. (2010). Positive outcomes following bereavement: Paths to posttraumatic growth. *Psychologica Belgica*, *50*(1-2).
- Cann, A., Calhoun, L. G., Tedeschi, R. G., Taku, K., Vishnevsky, T., Triplett, K. N., & Danhauer, S. C. (2010). A short form of the Posttraumatic Growth Inventory. *Anxiety, Stress, & Coping*, *23*(2), 127-137.
- Cerel, J., Brown, M. M., Maple, M., Singleton, M., van de Venne, J., Moore, M., & Flaherty, C. (2018). How Many People Are Exposed to Suicide? Not Six. *Suicide and Life-Threatening Behavior*. <https://doi.org/10.1111/sltb.12450>
- Cerel, J., Maple, M., van de Venne, J., Brown, M., Moore, M., & Flaherty, C. (2017). Suicide exposure in the population: Perceptions of impact and closeness. *Suicide and Life-Threatening Behavior*, *47*(6), 696-708.
- Cerel, J., Maple, M., van de Venne, J., Moore, M., Flaherty, C., & Brown, M. (2016). Exposure to suicide in the community: prevalence and correlates in one U.S. state. *Public Health Reports (1974)*, *131*(1), 100–107. Retrieved from <http://dx.doi.org/>
- Chen, J. H., Bierhals, A. J., Prigerson, H. G., Kasl, S. V., Mazure, C. M., & Jacobs, S. (1999). Gender differences in the effects of bereavement-related psychological distress in health outcomes. *Psychological Medicine*, *29*, 367-380.
- Chugh, S. S., Reinier, K., Teodorescu, C., Evanado, A., Kehr, E., Al Samara, M., ... & Jui, J. (2008). Epidemiology of sudden cardiac death: clinical and research implications. *Progress in cardiovascular diseases*, *51*(3), 213-228.
- Cleiren, M. P. (1993). *Bereavement and adaptation: A comparative study of the aftermath of death*. Taylor & Francis.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2013). *Applied multiple regression/correlation analysis for the behavioral sciences*. Routledge.
- Coleman, R. A., & Neimeyer, R. A. (2010). Measuring meaning: Searching for and making sense of spousal loss in late-life. *Death Studies*, *34*(9), 804-834.
- Currier, J. M., Holland, J. M., & Neimeyer, R. A. (2006). Sense-Making, Grief, and the Experience of Violent Loss: Toward a Mediational Model. *Death Studies*, *30*(5), 403–428. <https://doi.org/10.1080/07481180600614351>

- Currier, J. M., Holland, J. M., & Neimeyer, R. A. (2012). Prolonged grief symptoms and growth in the first 2 years of bereavement: Evidence for a nonlinear association. *Traumatology, 18*(4), 65-71.
- Currier, J. M., Mallot, J., Martinez, T. E., Sandy, C., & Neimeyer, R. A. (2013). Bereavement, religion, and posttraumatic growth: A matched control group investigation. *Psychology of Religion and Spirituality, 5*(2), 69.
- Curtin, S. C. (2019). Trends in cancer and heart disease death rates among adults aged 45–64: United States, 1999–2017. *Natl Vital Stat Rep. 2019*;68(5):1. https://www.cdc.gov/nchs/data/nvsr/nvsr68/nvsr68_05-508.pdf.
- Cvinar, J. G. (2005). Do suicide survivors suffer social stigma: a review of the literature. *Perspectives in psychiatric care, 41*(1), 14-21.
- Davis, C. G., Wohl, M. J., & Verberg, N. (2007). Profiles of posttraumatic growth following an unjust loss. *Death Studies, 31*(8), 693-712.
- Doka, K. J. (Ed.). (2002). *Disenfranchised grief: New directions, challenges, and strategies for practice*. Research PressPub.
- Dyregrov, K. (2002). Assistance from local authorities versus survivors' needs for support after suicide. *Death Studies, 26*(8), 647–668. <https://doi.org/10.1080/07481180290088356>
- Engelkemeyer, S. M., & Marwit, S. J. (2008). Posttraumatic growth in bereaved parents. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies, 21*(3), 344-346.
- Erlangsen, A., Runeson, B., Bolton, J. M., Wilcox, H. C., Forman, J. L., Krogh, J., ... & Conwell, Y. (2017). Association between spousal suicide and mental, physical, and social health outcomes: a longitudinal and nationwide register-based study. *JAMA psychiatry, 74*(5), 456-464.
- Feigelman, B., & Feigelman, W. (2008). Surviving After Suicide Loss: The Healing Potential of Suicide Survivor Support Groups. *Illness, Crisis, & Loss, 16*(4), 285–304. <https://doi.org/10.2190/IL.16.4.b>
- Feigelman, W., Feigelman, B., & Range, L. M. (2018). Grief and Healing Trajectories of Drug-Death-Bereaved Parents. *OMEGA - Journal of Death and Dying, 0030222818754666*. <https://doi.org/10.1177/0030222818754669>
- Feigelman, W., Gorman, B. S., Beal, K. C., & Jordan, J. R. (2008). Internet support groups for suicide survivors: A new mode for gaining bereavement assistance. *Omega-Journal of death and dying, 57*(3), 217-243.

- Feigelman, W., Gorman, B. S., & Jordan, J. R. (2009). Stigmatization and suicide bereavement. *Death Studies, 33*(7), 591–608. <https://doi.org/10.1080/07481180902979973>
- Fisher, J. E., Zhou, J., Zuleta, R. F., Fullerton, C. S., Ursano, R. J., & Cozza, S. J. (2020). Coping strategies and considering the possibility of death in those bereaved by sudden and violent deaths: grief severity, depression, and posttraumatic growth. *Frontiers in psychiatry, 11*, 749.
- Fleming, S., & Robinson, P. (2001). Grief and cognitive–behavioral therapy: The reconstruction of meaning.
- Gall, T. L., Henneberry, J., & Eyre, M. (2014). Two Perspectives on the Needs of Individuals Bereaved by Suicide. *Death Studies, 38*(7), 430–437. <https://doi.org/10.1080/07481187.2013.772928>
- Gillies, J., & Neimeyer, R. A. (2006). Loss, grief, and the search for significance: Toward a model of meaning reconstruction in bereavement. *Journal of Constructivist Psychology, 19*(1), 31-65.
- Gillies, J., Neimeyer, R. A., & Milman, E. (2014). The meaning of loss codebook: Construction of a system for analyzing meanings made in bereavement. *Death Studies, 38*(4), 207-216.
- Gillies, J. M., Neimeyer, R. A., & Milman, E. (2015). The Grief and Meaning Reconstruction Inventory (GMRI): Initial validation of a new measure. *Death Studies, 39*(2), 61-74.
- Graham, J. W., Olchowski, A. E., & Gilreath, T. D. (2007). How many imputations are really needed? Some practical clarifications of multiple imputation theory. *Prevention Science, 8*(3), 206-213.
- Guy, P., & Holloway, M. (2007). Drug-related deaths and the “Special Deaths” of late modernity. *Sociology, 41*(1), 83–96. <https://doi.org/10.1177/0038038507074717>
- Hanschmidt, F., Lehnig, F., Riedel-Heller, S. G., Kersting, A., Scocco, P., Castriotta, C., ... Fletcher, K. (2016). The Stigma of Suicide Survivorship and Related Consequences—A Systematic Review. *PLOS ONE, 11*(9), e0162688. <https://doi.org/10.1371/journal.pone.0162688>
- Hamdan, S., Berkman, N., Lavi, N., Levy, S., & Brent, D. (2019). The effect of sudden death bereavement on the risk for suicide: The role of suicide bereavement. *Crisis: The Journal of Crisis Intervention and Suicide Prevention*.
- Hardison, H. G., Neimeyer, R. A., & Lichstein, K. L. (2005). Insomnia and complicated grief symptoms in bereaved college students. *Behavioral sleep medicine, 3*(2), 99-111.

- Hedegaard, H., Curtin, S. C., & Warner, M. (2020). Increase in suicide mortality in the United States, 1999–2018. National Center for Health Statistics; 2020. NCHS Data Brief No 362. Accessed April 9, 2020. <https://www.cdc.gov/nchs/data/databriefs/db362-h.pdf>
- Herbert, R. S., Dang, Q. Y., & Schulz, R. (2006). Preparedness for the death of a loved one and mental health in bereaved caregivers of patients with dementia: Findings from the REACH study. *Journal of Palliative Medicine*, 9, 683-693.
- Hipp, J. R., & Bauer, D. J. (2006). Local solutions in the estimation of growth mixture models. *Psychological Methods*, 11(1), 36-53.
- Holland, J. M., Currier, J. M., Coleman, R. A., & Neimeyer, R. A. (2010). The Integration of Stressful Life Experiences Scale (ISLES): Development and initial validation of a new measure. *International Journal of Stress Management*, 17(4), 325.
- Holland, J. M., Currier, J. M., & Neimeyer, R. A. (2014). Validation of the integration of stressful life experiences scale—short form in a bereaved sample. *Death Studies*, 38(4), 234-238.
- Hom, M. A., Stanley, I. H., Gutierrez, P. M., & Joiner Jr, T. E. (2017). Exploring the association between exposure to suicide and suicide risk among military service members and veterans. *Journal of affective disorders*, 207, 327-335.
- Hunt, Q. A., & Hertlein, K. M. (2015). Conceptualizing suicide bereavement from an attachment lens. *The American Journal of Family Therapy*, 43(1), 16-27.
- Jordan, C. E., Feigelman, W., Jordan, J. R., Gorman, B. S., & McIntosh, J. L. (2012). *Devastating Losses: How Parents Cope With the Death of a Child to Suicide or Drugs*. Springer Publishing Company.
- Jordan, J. R. (2001). Is suicide bereavement different? A reassessment of the literature. *Suicide and life-threatening behavior*, 31(1), 91-102.
- Jordan, J. R. (2008). Bereavement after suicide. *Psychiatric Annals*, 38(10).
- Jordan, J. R., & McIntosh, J. L. (Eds.). (2011). *Grief after suicide: Understanding the consequences and caring for the survivors*. Routledge.
- Kaltman, S., & Bonanno, G. A. (2003). Trauma and bereavement:: Examining the impact of sudden and violent deaths. *Journal of anxiety disorders*, 17(2), 131-147.
- Keesee, N. J., Currier, J. M., & Neimeyer, R. A. (2008). Predictors of grief following the death of one's child: The contribution of finding meaning. *Journal of clinical psychology*, 64(10), 1145-1163.

- Keyes, K. M., Pratt, C., Galea, S., McLaughlin, K. A., Koenen, K. C., & Shear, M. K. (2014). The burden of loss: unexpected death of a loved one and psychiatric disorders across the life course in a national study. *American Journal of Psychiatry*, *171*(8), 864-871.
- Kilpatrick, D. G., Resnick, H. S., Milanak, M. E., Miller, M. W., Keyes, K. M., & Friedman, M. J. (2013). National estimates of exposure to traumatic events and PTSD prevalence using DSM-IV and DSM-5 criteria. *Journal of traumatic stress*, *26*(5), 537-547.
- Kochanek, K. D., Murphy, S. L., Xu, J., & Arias, E. (2020). National Vital Statistics Reports Volume 68, Number 9 June 24, 2019 Deaths: Final Data for 2017.; 2019.
- Kölves, K., Zhao, Q., Ross, V., Hawgood, J., Spence, S. H., & De Leo, D. (2020). Suicide and sudden death bereavement in Australia: A longitudinal study of family members over 2 years after death. *Australian & New Zealand Journal of Psychiatry*, *54*(1), 89-98.
- Kölves, K., Zhao, Q., Ross, V., Hawgood, J., Spence, S. H., & De Leo, D. (2019). Suicide and other sudden death bereavement of immediate family members: An analysis of grief reactions six-months after death. *Journal of affective disorders*, *243*, 96-102.
- Kroenke, K., Strine, T. W., Spitzer, R. L., Williams, J. B., Berry, J. T., & Mokdad, A. H. (2009). The PHQ-8 as a measure of current depression in the general population. *Journal of affective disorders*, *114*(1), 163-173.
- Latham, A. E., & Prigerson, H. G. (2004). Suicidality and bereavement: complicated grief as psychiatric disorder presenting greatest risk for suicidality. *Suicide and Life-Threatening Behavior*, *34*(4), 350-362.
- Lehman, D. R., Wortman, C. B., & Williams, A. F. (1987). Long-term effects of losing a spouse or child in a motor vehicle crash. *Journal of personality and social psychology*, *52*(1), 218.
- Levi-Belz, Y., Krysinska, K., & Andriessen, K. (2020). “Turning personal tragedy into triumph”: A systematic review and meta-analysis of studies on posttraumatic growth among suicide-loss survivors. *Psychological trauma: theory, research, practice, and policy*.
- Lichtenthal, W. G., Catarozoli, C., Masterson, M., Slivjak, E., Schofield, E., Roberts, K. E., ... & Li, Y. (2019). An open trial of meaning-centered grief therapy: Rationale and preliminary evaluation. *Palliative & supportive care*, *17*(1), 2.
- Linde, K., Treml, J., Steinig, J., Nagl, M., & Kersting, A. (2017). Grief interventions for people bereaved by suicide: A systematic review. *PLoS One*, *12*(6), e0179496.
- Little, T. D., Jorgensen, T. D., Lang, K. M., & Moore, E. W. G. (2013). On the joys of missing data. *Journal of Pediatric Psychology*, *39*(2), 151-162.

- Lichtenthal, W. G., Burke, L. A., & Neimeyer, R. A. (2011). Religious coping and meaning-making following the loss of a loved one. *Counseling and Spirituality, 30*(2), 113-135.
- Lo, Y., Mendell, N. R., & Rubin, D. B. (2001). Testing the number of components in a normal mixture. *Biometrika, 88*(3), 767-778.
- Lobb, E. A., Kristjanson, L. J., Aoun, S. M., Monterosso, L., Halkett, G. K., & Davies, A. (2010). Predictors of complicated grief: A systematic review of empirical studies. *Death studies, 34*(8), 673-698.
- Löwe, B., Decker, O., Müller, S., Brähler, E., Schellberg, D., Herzog, W., & Herzberg, P. Y. (2008). Validation and standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the general population. *Medical care, 266*-274.
- Magidson, J., & Vermunt, J. (2002). Latent class models for clustering: A comparison with K-means. *Canadian Journal of Marketing Research, 20*(1), 36-43.
- McCart, M. R., Chapman, J. E., Zajac, K., & Rheingold, A. A. (2020). Community-based randomized controlled trial of psychological first aid with crime victims. *Journal of consulting and clinical psychology, 88*(8), 681.
- Mcmenamly, J. M., Jordan, J. R., & Mitchell, A. M. (2008). What do Suicide Survivors Tell Us They Need? Results of a Pilot Study. *Suicide and Life-Threatening Behavior, 38*(4), 375–389. <https://doi.org/10.1521/suli.2008.38.4.375>
- Merlevede, E., Spooren, D., Henderick, H., Portzky, G., Buylaert, W., Jannes, C., ... & Michem, N. (2004). Perceptions, needs and mourning reactions of bereaved relatives confronted with a sudden unexpected death. *Resuscitation, 61*(3), 341-348.
- Miklin, S., Mueller, A. S., Abrutyn, S., & Ordonez, K. (2019). What does it mean to be exposed to suicide?: Suicide exposure, suicide risk, and the importance of meaning-making. *Social Science & Medicine, 233*, 21-27.
- Milman, E., Neimeyer, R. A., Fitzpatrick, M., MacKinnon, C. J., Muis, K. R., & Cohen, S. R. (2019). Prolonged grief and the disruption of meaning: Establishing a mediation model. *Journal of counseling psychology, 66*(6), 714.
- Mitchell, A. M., Kim, Y., Prigerson, H. G., & Mortimer-Stephens, M. (2004). Complicated grief in survivors of suicide. *Crisis, 25*(1), 12-18.
- Mitchell, A. M., Kim, Y., Prigerson, H. G., & Mortimer, M. K. (2005). Complicated grief and suicidal ideation in adult survivors of suicide. *Suicide and Life-Threatening Behavior, 35*(5), 498-506.

- Mitchell, A. M., & Terhorst, L. (2017). PTSD symptoms in survivors bereaved by the suicide of a significant other. *Journal of the American Psychiatric Nurses Association*, 23(1), 61-65.
- Molina, N., Viola, M., Rogers, M., Ouyang, D., Gang, J., Derry, H., & Prigerson, H. G. (2019). Suicidal ideation in bereavement: a systematic review. *Behavioral Sciences*, 9(5), 53.
- Moran, M. (2020, October 28). Board approves new prolonged grief disorder for DSM. *Psychiatric News*. <https://doi.org/10.1176/appi.pn.2020.11a12>
- Muthén, L.K. and Muthén, B.O. (1998-2017). *Mplus User's Guide. Eighth Edition*. Los Angeles, CA: Muthén & Muthén.
- Neimeyer, R. A. (2016). Meaning reconstruction in the wake of loss: Evolution of a research program. *Behaviour Change*, 33(2), 65-79.
- Neimeyer, R. A. (2019). Meaning reconstruction in bereavement: Development of a research program. *Death Studies*, 43(2), 79-91.
- Neimeyer, R. A., Cerel, J., & Maple, M. (2017). Recommendations for Research on Suicide Loss: A Commentary. *Death Studies*, 1187(June), 07481187.2017.1335555. <https://doi.org/10.1080/07481187.2017.1335555>
- Neimeyer, R. A., & Sands, D. C. (2011). Meaning reconstruction in bereavement: From principles to practice.
- Norris, F. H. (1992). Epidemiology of trauma: frequency and impact of different potentially traumatic events on different demographic groups. *Journal of consulting and clinical psychology*, 60(3), 409.
- Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural Equation Modeling*, 14(4), 535-569.
- Osman, A., Bagge, C. L., Gutierrez, P. M., Konick, L. C., Kopper, B. A., & Barrios, F. X. (2001). The Suicidal Behaviors Questionnaire-Revised (SBQ-R): Validation with clinical and nonclinical samples. *Assessment*, 8(4), 443-454.
- Park, C. L. (2010). Making sense of the meaning literature: an integrative review of meaning making and its effects on adjustment to stressful life events. *Psychological bulletin*, 136(2), 257.
- Pitman, A., Nesse, H., Morant, N., Azorina, V., Stevenson, F., King, M., & Osborn, D. (2017). Attitudes to suicide following the suicide of a friend or relative: A qualitative study of the views of 429 young bereaved adults in the UK. *BMC psychiatry*, 17(1), 400.

- Pitman, A., Osborn, D., King, M., & Erlangsen, A. (2014). Effects of suicide bereavement on mental health and suicide risk. *The Lancet Psychiatry*, *1*(1), 86–94. [https://doi.org/10.1016/S2215-0366\(14\)70224-X](https://doi.org/10.1016/S2215-0366(14)70224-X)
- Pitman, A. L., Osborn, D. P., Rantell, K., & King, M. B. (2016). The stigma perceived by people bereaved by suicide and other sudden deaths: a cross-sectional UK study of 3432 bereaved adults. *Journal of psychosomatic research*, *87*, 22-29.
- Pitman, A. L., Stevenson, F., Osborn, D. P., & King, M. B. (2018). The stigma associated with bereavement by suicide and other sudden deaths: A qualitative interview study. *Social Science & Medicine*, *198*, 121-129.
- Prigerson, H. (2004). Complicated grief: When the path of adjustment leads to a dead-end. *Bereavement Care*, *23*(3), 38-40.
- Prigerson, H. G., Horowitz, M. J., Jacobs, S. C., Parkes, C. M., Aslan, M., Goodkin, K., ... & Bonanno, G. (2009). Prolonged grief disorder: Psychometric validation of criteria proposed for DSM-V and ICD-11. *PLoS Med*, *6*(8), e1000121.
- Prigerson, H. G., Maciejewski, P. K., Reynolds III, C. F., Bierhals, A. J., Newsom, J. T., Fasiczka, A., ... & Miller, M. (1995). Inventory of Complicated Grief: a scale to measure maladaptive symptoms of loss. *Psychiatry research*, *59*(1-2), 65-79.
- Provini, J.R., Everett, C.R., & Pfeffer, C. (2000). Adults mourning suicide: Self-reported concerns about bereavement, needs for assistance, and help-seeking behavior. *Death Studies*, *24*(1), 1-19.
- Qualtrics, L. L. C. (2016). Security statement.
- Raftery, A. E. (1995). Bayesian model selection in social research. *Sociological Methodology*, *25*, 111-164.
- Reger, M. A., Stanley, I. H., & Joiner, T. E. (2020). Suicide mortality and coronavirus disease 2019—a perfect storm?. *JAMA psychiatry*.
- Rose, J. S., Chassin, L., Presson, C., Sherman, S. J., Stein, M. D., & Col, N. (2007). A latent class typology of young women smokers. *Addiction*, *102*(8), 1310-1319.
- Ross, V., Kőlves, K., & De Leo, D. (2019). Exploring the Support Needs of People Bereaved by Suicide: A Qualitative Study. *OMEGA - Journal of Death and Dying*, 003022281982577. <https://doi.org/10.1177/0030222819825775>
- Rozalski, V., Holland, J. M., & Neimeyer, R. A. (2016). Circumstances of Death and Complicated Grief: Indirect Associations Through Meaning Made of Loss. *Journal of Loss and Trauma*, *5024*(March), 1–13. <https://doi.org/10.1080/15325024.2016.1161426>

- Rubin, S. S. (1999). The two-track model of bereavement: Overview, retrospect, and prospect. *Death studies*, 23(8), 681-714.
- Schaal, S., Jacob, N., Dusingizemungu, J-P., & Elbert, T. (2010). Rates and risks for prolonged grief disorder in a sample of orphaned and wid-owed genocide survivors. *BMC Psychiatry*, 10, 55.
- Schwarz, G. (1978). Estimating the dimension of a model. *The Annals of Statistics*, 6(2), 461-464.
- Schwartz, L. E., Howell, K. H., & Jamison, L. E. (2018). Effect of time since loss on grief, resilience, and depression among bereaved emerging adults. *Death studies*, 42(9), 537-547.
- Servaty-Seib, H. L., & Pistole, M. C. (2007). Adolescent grief: Relationship category and emotional closeness. *OMEGA-Journal of Death and Dying*, 54(2), 147-167.
- Shear, K., Frank, E., Houck, P. R., & Reynolds, C. F. (2005). Treatment of complicated grief: A randomized controlled trial. *Jama*, 293(21), 2601-2608.
- Shaw, A., Joseph, S., & Linley, P. A. (2005). Religion, spirituality, and posttraumatic growth: A systematic review. *Mental Health, Religion & Culture*, 8(1), 1-11.
- Shear, M. K., Ghesquiere, A., & Glickman, K. (2013). Bereavement and complicated grief. *Current psychiatry reports*, 15(11), 406.
- Shear, M. K., Simon, N., Wall, M., Zisook, S., Neimeyer, R., Duan, N., ... & Gorskak, B. (2011). Complicated grief and related bereavement issues for DSM-5. *Depression and anxiety*, 28(2), 103-117.
- Shin, C., Lee, S. H., Han, K. M., Yoon, H. K., & Han, C. (2019). Comparison of the usefulness of the PHQ-8 and PHQ-9 for screening for major depressive disorder: analysis of psychiatric outpatient data. *Psychiatry investigation*, 16(4), 300.
- Silverman, E., Range, L., & Overholser, J. (1995). Bereavement from suicide as compared to other forms of bereavement. *OMEGA-Journal of Death and Dying*, 30(1), 41-51.
- Smigelsky, M. A., Bottomley, J. S., Relyea, G., & Neimeyer, R. A. (2019). Investigating risk for grief severity: Attachment to the deceased and relationship quality. *Death studies*.
- Smyth, J. M., Pennebaker, J. W., & Arigo, D. (2012). *What are the health effects of disclosure?* In A. Baum, T. A. Revenson, & J. Singer (Eds.), *Handbook of health psychology* (p. 175–191). Psychology Press.

- Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of internal medicine*, 166(10), 1092-1097.
- Stephenson, J. (2020, October). Drug Overdose Deaths Head Toward Record Number in 2020, CDC Warns. In *JAMA Health Forum* (Vol. 1, No. 10, pp. e201318-e201318). American Medical Association.
- Stroebe, M., Schut, H., & Stroebe, W. (2007). Health outcomes of bereavement. *The Lancet*, 370(9603), 1960-1973.
- Supiano, K. P., Haynes, L. B., & Pond, V. (2017). The transformation of the meaning of death in complicated grief group therapy for survivors of suicide: A treatment process analysis using the meaning of loss codebook. *Death studies*, 41(9), 553-561.
- Sveen, C.-A., & Walby, F. A. (2008). Suicide Survivors' Mental Health and Grief Reactions: A Systematic Review of Controlled Studies. *Suicide and Life-Threatening Behavior*, 38(1), 13–29. <https://doi.org/10.1521/suli.2008.38.1.13>
- Tal, I., Mauro, C., Reynolds III, C. F., Shear, M. K., Simon, N., Lebowitz, B., ... & Glorioso, D. (2017). Complicated grief after suicide bereavement and other causes of death. *Death studies*, 41(5), 267-275.
- Tedeschi, R. G., & Calhoun, L. G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of traumatic stress*, 9(3), 455-471.
- Templeton, L., Ford, A., McKell, J., Valentine, C., Walter, T., Velleman, R., ... Hollywood, J. (2016). Bereavement through substance use: findings from an interview study with adults in England and Scotland. *Addiction Research and Theory*, 24(5), 341–354. <https://doi.org/10.3109/16066359.2016.1153632>
- Templeton, L., Valentine, C., McKell, J., Ford, A., Velleman, R., Walter, T., ... Hollywood, J. (2017). Bereavement following a fatal overdose: The experiences of adults in England and Scotland. *Drugs: Education, Prevention and Policy*, 24(1), 58–66. <https://doi.org/10.3109/09687637.2015.1127328>
- Uhernik, J. A., & Husson, M. A. (2009). Psychological first aid: An evidence informed approach for acute disaster behavioral health response. *Compelling counseling interventions: VISTAS*, 200(9), 271-280.
- Valentine, C., Bauld, L., & Walter, T. (2016). Bereavement Following Substance Misuse. *OMEGA - Journal of Death and Dying*, 72(4), 283–301. <https://doi.org/10.1177/0030222815625174>

- Valdimarsdóttir, U., Helgason, Á. R., Fürst, C. J., Adolfsson, J., & Steineck, G. (2004). Awareness of husband's impending death from cancer and long-term anxiety in widowhood: a nationwide follow-up. *Palliative medicine*, *18*(5), 432-443.
- Van Ameringen, M., Mancini, C., Patterson, B., & Boyle, M. H. (2008). Post-traumatic stress disorder in Canada. *CNS neuroscience & therapeutics*, *14*(3), 171-181.
- Wakeman, S. E., Green, T. C., & Rich, J. (2020). An overdose surge will compound the COVID-19 pandemic if urgent action is not taken. *Nature Medicine*, 1-2.
- Waugh, A., Kiemle, G., & Slade, P. (2018). What aspects of post-traumatic growth are experienced by bereaved parents? A systematic review. *European journal of psychotraumatology*, *9*(1), 1506230.
- Weathers, F. W., Litz, B. T., Keane, T. M., Palmieri, P. A., Marx, B. P., & Schnurr, P. P. (2013). The ptsd checklist for dsm-5 (pcl-5). *Scale available from the National Center for PTSD at www.ptsd.va.gov*, *10*.
- Wheeler, I. (2001). Parental bereavement: The crisis of meaning. *Death studies*, *25*(1), 51-66.
- Williams, J. L., Hardt, M. M., Henschel, A. V., & Jobe-Shields, L. (2020). Anxiety Sensitivity Moderates the Association Between Peritraumatic Distress and Bereavement Outcomes Among Sudden Loss Survivors. *The Journal of Nervous and Mental Disease*, *208*(11), 863-869.
- Wilson, A., & Marshall, A. (2010). The support needs and experiences of suicidally bereaved family and friends. *Death Studies*, *34*(7), 625-640.
<https://doi.org/10.1080/07481181003761567>
- Wisten, A., & Zingmark, K. (2007). Supportive needs of parents confronted with sudden cardiac death—a qualitative study. *Resuscitation*, *74*(1), 68-74.
- Zisook, S., Chentsova-Dutton, Y., & Shuchter, S. R. (1998). PTSD following bereavement. *Annals of Clinical Psychiatry*, *10*(4), 157-163. <https://doi.org/10.1023/A:1022342028750>

Appendix A

IRB Approval Letter

From: irb@memphis.edu
Subject: PRO-FY2018-685 - Renewal: Approval - Renewal
Date: April 6, 2020 at 6:13 PM
To: jsbtmly@memphis.edu, neimeyer@memphis.edu



Institutional Review Board
Division of Research and Innovation
Office of Research Compliance
University of Memphis
315 Admin Bldg
Memphis, TN 38152-3370

PI: Jamison Bottomley
Co-Investigator:
Advisor and/or Co-PI: Robert Neimeyer
Department: Psychology, unknown
Study Title: Surviving Suicide and Opioid-Related Loss: Examining Needs, Support, and Grief Trajectories
IRB ID: PRO-FY2018-685
Submission Type: Renewal
Level of Review: Expedited

IRB Meeting Date:
Decision: Approved
Approval Date: April 6, 2020

Research Notes:
Findings:

The IRB has reviewed the renewal request. The University of Memphis Institutional Review Board, FWA00006815, has reviewed your submission in accordance with all applicable statuses and regulations as well as ethical principles.

Approval of this project is given with the following obligations:

1. If this IRB approval has an expiration date, an approved renewal must be in effect to continue the project prior to that date. If approval is not obtained, the human subjects consent form(s) and recruiting material(s) are no longer valid and any research activities involving human subjects must stop.
2. When the project is finished a completion form must be completed and sent to the board.
3. No change may be made in the approved protocol without prior board approval, whether the approved protocol was reviewed at the Exempt, Expedited or Full Board level.
4. Exempt approval are considered to have no expiration date and no further review is necessary unless the protocol needs modification.
5. Human subjects training is required every 2 years and is to be kept current at citiprogram.org.

Thank you,
James P. Whelan, Ph.D.
Institutional Review Board Chair
The University of Memphis.

Note: Review outcomes will be communicated to the email address on file. This email should be considered an official communication from the UM IRB.