

THE ROLE OF EXPERIENTIAL AVOIDANCE IN THE RELATIONSHIP BETWEEN
EMOTIONAL PAIN AND YEARNING IN SUDDEN AND UNEXPECTED
BEREAVEMENT

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University of Missouri-Kansas City, 2019

ABSTRACT

Individuals who have experienced a sudden or unexpected loss of a close family member or friend are at heightened risk for developing psychiatric morbidity, including prolonged grief disorder (PGD; i.e., pathological grief). Current models of grief and bereavement suggest grief experiences become pathological when individuals are unable to integrate their loss experiences into their post-loss life and continue to experience painful, persistent grief symptomology six to 12 months after the death. Emotional pain, experiential avoidance (EA), and yearning have been identified within grief and bereavement literature as three key features of grief that also prominently manifest in pathological forms of grief. Yearning has been conceptualized as an emotional state which leads to proximity seeking behaviors, and emotional pain has been conceptualized as an emotional state which leads to grief-related avoidance. However, a gap exists in the literature explaining how these variables may interact and perpetuate one another. The present study aims to reconceptualize the role of EA in the relationship between emotional pain and yearning and explore differences in relationship effects at various levels of PGD symptom severity in a sample of suddenly and unexpectedly bereaved young adults. Findings indicate emotional pain as a significant predictor of EA, $b = 4.29$, $SE = .44$, $p < .01$, and EA as a significant predictor of yearning, $b = .01$, $SE = .00$, $p < .05$. Approximately, 11% of the variance in yearning was

accounted for by the predictors. Results indicate the indirect coefficient was significant, $b = .05$, $SE = .02$, 95% CI [.0095, .0942]. Results indicate that yearning associated with emotional pain may be partially explained by EA. These findings suggest further attention should be given to understanding additional mechanisms that may influence individuals' engagement in yearning-related behaviors.

APPROVAL PAGE

The faculty listed below, appointed by the Dean of College of Arts and Sciences have examined a thesis titled "The Role of Experiential Avoidance in the Relationship Between Emotional Pain and Yearning in Sudden and Unexpected Bereavement," presented by Madeleine M. Hardt, candidate for the Master of Arts degree, and certify that in their opinion it is worthy of acceptance.

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CHAPTER 1

INTRODUCTION

Symptoms and Risk Factors in Grief

Bereavement is the experience of having lost someone who is close, such as a family member or friend. Grief refers to the psychobiological responses to bereavement. After the loss of a loved one, it is common for individuals to experience a variety of grief symptoms. Common grief symptoms include loss of interest or pleasure related to missing the deceased, emotional pangs triggered by reminders of the loss, preoccupation with the deceased, guilt and self-blame, avoidance of reminders of the death, intrusive death-related imagery, and yearning and longing for the deceased (Shear, 2010). Although most grief experiences vary in manifestations, intensity, and duration, many individuals' grief symptoms will largely resolve or diminish in intensity by 18 months post-loss (Bonanno et al., 2002). Indeed, most individuals are able to grieve in ways that lead to the acceptance of their loss, the integration of their loss into their current life, and the ability to imagine the possibility of joy and satisfaction in their future (Shear, 2010).

Although many people process through their grief successfully over time, approximately 15% of bereaved individuals may be susceptible to prolonged or complicated grief (Prigerson et al., 2009). For young adults, the population of focus in the present study, prevalence rates for prolonged grief disorder (PGD) are unclear, as there is currently no epidemiological study bereavement in this age group. One study conducted at a private, Midwestern university found the prevalence of PGD to be roughly 2% in their racially diverse, college-aged sample (Balk, Walker, & Baker, 2010). Another study conducted at two Northeastern universities (one private and one public) examining predominately white

bereaved young adults found 16% of participants met criteria for PGD (Herberman-Mash, Fullerton, Shear, & Ursano, 2014). Nonetheless, research suggests that approximately 80% of college students report having lost someone within their immediate or extended family during their lifetime, and 60% report having lost a friend (Herberman-Mash, Fullerton, & Ursano, 2013). Indeed, 22% to 30% of undergraduate college students are within the first year of bereavement of a parent, grandparent, sibling, or close friend (Balk et al., 2010; Cailoa, 2015), and 39% are within two years of bereavement (Balk et al., 2010). Additionally, it has been shown that compared to non-bereaved youth and young adults, familial bereaved youth and young adults are at increased risk for psychological and behavioral health problems (e.g., separation anxiety, depression, conduct disorder, substance abuse; Kaplow, Saunders, Angold, & Costello, 2010). However, positive outcomes, such as gaining a deeper appreciation of life, showing greater caring for loved ones, strengthening emotional bonds with others, and developing emotional strength, are also commonly endorsed after bereavement during young adulthood (Oltjenbruns, 1991).

PGD, defined as the inability of a survivor to accept the death of their loved one, may begin six to twelve months after the death (Maciejewski, Zhang, Block, & Prigerson, 2007). Symptoms of PGD are similar to usual grief symptoms; however, PGD symptoms are often higher in intensity and longer in duration (Shear, 2012). In addition to more severe experiences of typical grief symptoms (e.g., the denial of one's loss, avoidance behaviors, yearning for a reunion with a loved one, difficulty adjusting to life without the deceased, decreases in self-worth), those with PGD demonstrate clinically significant distress or impairment in social, occupational, and/or other important areas of functioning that are not otherwise explained as culturally appropriate responses (Prigerson et al., 2009; Shear, 2012).

Risk factors for PGD include insecure attachment style, parental abuse or death, childhood separation anxiety, parental control, loved one's dependency on the deceased, closeness with the family of the deceased, general tendencies to avoidance, and an unanticipated death (e.g., homicide, suicide, sudden illness; Prigerson et al., 2009). Additionally, experiencing trauma or cumulative loss before the death of a loved one can contribute to these risk factors (Prigerson et al, 2009). While the majority of bereaved persons do not go on to meet formal criteria for PGD following the death of a loved one, many grievers will experience distressing, PGD symptoms such as emotional pain associated with memories of the death (especially in cases of sudden or unexpected loss) and intense yearning for the deceased (Zisook & Shear, 2013).

Sudden and Unexpected Loss – Prevalence and Clinical Challenges

Sudden and unexpected losses can include homicides, suicides, deaths from overdoses, deaths due to natural disasters, deaths due to war or acts of terror, deaths resulting from sudden illness, deaths following accidents, or any other deaths where there was less time for survivors to prepare for and adapt to the loss. In a study that used national epidemiologic survey data, 50.3% of respondents endorsed ever experiencing an unexpected death of a loved one (Keyes et al., 2014). In the U.S., approximately 214,000 people (one person every three minutes) die each year due to violence or accidental injury (Centers for Disease Control and Prevention, 2017). Recent national trends in violent crime and homicide rates have shown increases from 2014 to 2015 and from 2015 to 2016 (James, 2018). From 2014 to 2015, violent crime and homicide rates were at the highest they have been in larger cities in the past 20 years (e.g., Los Angeles, 30% increase; Wichita, 30% increase; Kansas City, 40% increase; James, 2018). Additionally, U.S. suicide rates from 1999 to 2016

increased by 25.4% (Stone et al., 2018). Suddenly and unexpectedly bereaved individuals are at heightened risk for developing severe grief reactions, such as emotional pain, yearning, and avoidance, that, for some people, ultimately evolves into PGD (Newson, Boelen, Hek, Hofman, & Tiemeier, 2011). Perceptions and feelings of lack of preparedness for the death might be indicators of these bereaved individuals' risk of developing psychiatric morbidity in addition to bereavement (Barry, Kasl, & Prigerson, 2002). Indeed, multiple studies have found individuals bereaved by unexpected losses to be at greater risk for psychiatric morbidity (e.g., major depressive episodes, panic disorder, posttraumatic stress disorder, substance abuse, generalized anxiety) compared to individuals who were not suddenly or unexpectedly bereaved (Applebaum & Burns, 1991; Keyes et al., 2014; Lundin, 1984). Recent national increases in rates of sudden and unexpected forms of death suggests a coinciding rise in the number of bereaved individuals living in the U.S. Consequently, there may be more individuals at risk for developing psychiatric morbidity (e.g., depression, PTSD). Thus, a need for the continuation and improvement of bereavement-related research exists.

Models of Grief and Bereavement

Historically, clinicians and researchers assumed that the process of grieving naturally resolved for most individuals as the mourner experienced a series of “stages” in the grieving process (i.e., denial, anger, bargaining, depression, and acceptance; Kubler-Ross, 1969). It was proposed that during the denial stage, experiences such as avoidance, confusion, elation, shock, and fear are commonly endorsed and used to aid in the pacing of grief reactions and coping (Kubler-Ross, 1969). The anger stage, which includes experiences such as frustration, irritation, and anxiety, is thought to occur when people begin to recognize the reality of their

loss. This is followed by the bargaining stage where individuals are thought to struggle to find meaning and may begin reaching out to other people. Next, in the depression stage, experiences such as helplessness, hostility, and hopelessness were thought to occur. Finally, emotions begin to stabilize in the last stage—acceptance—where people begin to reengage socially, adjust to their new reality, and come to terms with the fact that their loved one is not coming back. Complications in grieving, like PGD, were thought to arise when the mourner did not resolve these successive stages. Since the original conceptualization of this model, Kubler-Ross has argued for a more fluid model of grief and bereavement where grievers may experience stages in various sequences and/or not experience all or any stages at all (Kubler-Ross & Kessler, 2005).

Over time, theories surrounding the process of coping after the loss of a loved one have moved from this grief work hypothesis to a more dynamic approach. The developmental theory of grief utilizes an epigenetic systems perspective where the bereaved individual's grief processes are thought to be shaped by bio-genetic factors (e.g., dispositional temperament, genetic vulnerability to changing affective states, and physical resilience), personal-agentic factors (e.g., emotional awareness, personal philosophy, and coping skills), dyadic-relational factors (e.g., social support, family grieving styles, and social connectivity), and cultural-linguistic factors (e.g., societal, gendered, or ethnic norms of grief, cultural disenfranchisement of different types of loss; Neimeyer & Caciatoore, 2016). This theory emphasizes the various factors and challenges that may affect an individual's grief experience and turns attention to the coping processes bereaved individuals use in the context of grieving. Similar to changes that have occurred in models of grief,

recent coping research has moved to a more flexible model for how individuals may process grief and work toward integrating their loss experience into their life.

The Dual Process Model (DPM) attempts to more accurately represent the dynamic process of grieving. Importantly, in contrast to previous models that conceptualized avoidance, denial, and suppression in grief as experiences that individuals need to “work through,” the DPM emphasizes the importance and healthy nature of experiencing such grief reactions and using them throughout the process of bereavement. Indeed, Stroebe & Schut (1999) argue that responses, such as avoidance, may be adaptive for bereaved individuals when trying to maintain day to day functioning while experiencing stressors related to the loss of their loved one (e.g., intrusions of grief), especially when general stressors related to maintaining daily functioning may be amplified with new stressors due to the loss (e.g., new responsibility within the family, economic changes, forming new relationships). The DPM identifies two types of stressors in coping: loss-oriented (LO) and restoration-oriented (RO) stressors. LO stressors refer to stressors that occur when focusing on and processing the loss of the deceased individual and the relationship the bereaved had with that individual. LO stressors may include intrusions of imagery related to the deceased, imagining what the person might do or say if they were not dead, denial or avoidance of the reality of changes that are happening as a result of the loss, and relinquishing, breaking, or changing bonds with the deceased. RO stressors refer to secondary sources of stress that are being experienced as a consequence of the death. RO stressors may include attending to life changes, having to fulfil tasks or responsibilities that were previously completed by the deceased (i.e., cleaning, groceries, taxes), trying new things, denying or avoiding grief responses, and forming relationships. The model includes a dynamic, regulatory coping process, whereby bereaved

individuals oscillate between confronting and avoiding various grief-related tasks (Stroebe & Schut, 1999).

This oscillation between confronting and avoiding grief-related tasks is similar to approach and avoidance tendencies described in general stress and coping literature. Approach reactions are thought to allow for assimilation and resolution of trauma, ventilation of affect, and appropriate action but may increase distress and cause nonproductive worry. Avoidance reactions are thought to reduce stress, allow for dosing of distress, and increase hope and courage but may interfere with appropriate actions, cause emotional numbness, increase intrusions of threatening imagery, lead to disruptive avoidance behaviors, and cause a lack of awareness of the relationship between their symptoms and the trauma (Roth & Cohen, 1986). Both tendencies are adaptive, however, they become maladaptive when under or over-utilized to cope after a stressful or potentially traumatic event. The theory surrounding adaptive coping after loss is similar.

Adaptive coping in the DPM includes the confrontation and avoidance of both LO and RO stressors. The model also asserts a need for individuals to engage in periods of respite from dealing with either of these stressors to achieve optimal adjustment over time (e.g., enjoyable activities, mediation, other forms of self-care). In cases of PGD, however, it is believed that these individuals have a disturbance in their confrontation-avoidance oscillation where they exhibit either extreme rumination or extreme denial concerning the loss. Because grief-related avoidance is a central characteristic in unresolved, prolonged grief (Shear et al., 2007) and avoidance is an integral part of the DPM, most explanations of disruptions in the coping process focus on figuring out if/how the individual is exhibiting maladaptive avoidance. Given the extreme emotional pain associated with death-related

imagery, an especially important precursor for maladaptive avoidance may be recurrent pain cued by reminders of a loved one's death.

Emotional Pain in Grief

The loss of an attachment figure leads to disruption in one's felt security. This disruption can lead to varying levels of biobehavioral dysregulation, ranging from physiological arousal and disorganization to highly organized adaptive stress responses to separation distress (Sbarra & Hazan, 2008). Emotional pain in grief can be conceptualized as any reexperiencing of negative grief-related psychological and physical symptoms that occur in response to reminders of their loss (Skritskaya et al., 2014). Reexperiencing symptoms in the form of painful emotional and physical reactions are common in response to reminders of the death or the absence of the loved one (Zisook & Shear, 2009). Such experiences might include repeated, disturbing, or unwanted memories of the loss, negative emotional reactions when reminded of the loss (e.g., upset, angry, sad), and strong physical reactions when reminded of the loss (e.g., increased heart rate, difficulty breathing, sweating).

Painful reexperiencing symptoms in the form of death and dying imagery are particularly salient in traumatically bereaved individuals and have been associated with mental health outcomes such as posttraumatic stress disorder, depression, and PGD (Baddeley et al., 2015). Although traumatically bereaved individuals may not have witnessed the death of their loved one, they may reconstruct images based on information and details provided by third party sources (e.g., police, medical professionals, witnesses, and/or news reports). Intrusive thoughts, imagery, and ruminations concerning the circumstances of the death may, therefore, be particularly distressing in traumatic loss survivors (Baddeley et al., 2015). Indeed, in a previous study of 130 treatment-seeking traumatically bereaved adults,

93.1% of participants endorsed having experienced at least one type of death-related imagery, with approximately 80% of the sample reporting having experienced reenactment imagery involving replaying of the dying as thoughts, visual “flashbacks,” and/or dreams (Baddeley et al., 2015). In response to experiencing painful emotions associated with intrusive reexperiencing symptoms such as death-related imagery, many bereaved people engage in grief-related avoidance in attempts to alleviate their felt distress.

Grief-Related Avoidance

People commonly use avoidance as a response to emotionally charged or distressing situations. The construct of avoidance, broadly defined, encompasses thoughts and efforts put forth by an individual in order to prevent future aversive experiences and events (Servatius, 2016). Bereaved individuals may use behavioral avoidance by withdrawing or refraining from external demands, such as activities they once enjoyed with the deceased, in order to evade emotional pain related to their loss. A less overt form of avoidance also commonly employed by bereaved individuals is experiential avoidance (EA). EA involves any action used by an individual to evade or escape specific thoughts, feelings, memories, physical sensations, and/or other internal experiences (Hayes, Strosahl, & Wilson, 2012). Bereaved individuals may suppress internal experiences associated with their loss or avoid places, objects, or situations related to the deceased in attempts to manage their emotional pain (Boelen, van den Bout, & van den Hout, 2006; Boelen, van den Hout, & van den Bout, 2006).

The DPM asserts that avoidance is often adaptively used by bereaved individuals in order to oscillate between loss-oriented coping and restoration-oriented coping. However, in order for this avoidance to be adaptive, the bereaved person must also be able to maintain a

degree of control concerning when and when not to employ avoidance techniques.

Avoidance becomes maladaptive when overly implemented or not implemented at all. The avoidance of internal experiences (i.e., emotions, thoughts, memories related to the deceased) and external demands (i.e., social activities, daily routines, occupational responsibilities) can increase numbness and detachment, which contribute to PGD symptoms (Boelen, van den Bout et al., 2006; Boelen, van den Hout et al., 2006). Indeed, avoidance can contribute to one's inability to integrate their loss into their current autobiographical knowledge base and reinforce negative beliefs and interpretations related to their grief reactions (Boelen, van den Bout et al., 2006).

Avoidance in grief has been associated with a variety of negative outcomes among bereaved individuals, including an increased amount of intrusive thoughts related to the death (Shear, 2010), poorer health outcomes (Bonanno, 2005), and more PGD symptom severity and impairment (Nam, 2016; Shear et al., 2007). Paradoxically, one way that bereaved individuals may avoid internal or external reminders of the loss is through yearning for the deceased or seeking reminders or objects associated with the deceased person. That is, proximity seeking behaviors found in yearning may be used as a way to restore proximity to the deceased and avoid the painful emotions experienced by the deceased's absence and the reality of their death.

Yearning

Yearning is an emotional state commonly experienced in situations of loss, where an individual is focused on the desire for—in the case of bereavement—a person that was treasured in the past (O'Connor & Sussman, 2014). Yearning is reported as the most prominent emotion experienced across the first two years of bereavement (Maciejewski,

Zhang, Block, & Prigerson, 2007). Although primarily viewed as a negative emotion, yearning may also evoke bittersweet positive emotions (Shear, Frank, Houck, & Reynolds, 2005). It has been theorized that after the loss of a loved one, when individuals experience increased levels of emotional pain, yearning may help alleviate felt emotional distress by restoring proximity to the deceased (Sharra & Hazan, 2008). However, it is proposed that yearning may partially explain differences in PGD reactions. When examining brain images, bereaved individuals demonstrate pain-related neural activity in association to their lost loved one. However, in addition to pain-related activity, those with PGD demonstrate reward-related neural activity in the nucleus accumbens (O'Connor et al., 2008). Activity in the nucleus accumbens is strongly associated with self-reported yearning, but not with time since loss, participant age, or positive or negative affect, suggesting differences in yearning and the neural reward activity still activated by the deceased may interfere with adapting to the loss and lead to PGD reactions (O'Connor et al., 2008). The difference between yearning experiences in those with complicated versus non-complicated grief suggests that yearning may play a larger role in explaining disruptions in the coping process than previously understood.

Modeling Associations Between Emotional Pain, Experiential Avoidance, and Yearning

Common grief reactions such as emotional pain, EA, and yearning likely interact to maintain each other. However, limited research exists examining the interactions of these three constructs. One previous study, conducted by Skritskaya et al. (2014), examined yearning and emotional pain in relation to approach and avoidance grief-related behaviors (see Figure 1). The study examined 262 bereaved adults engaged in a clinical trial for PGD. All participants were selected based on screening positive for PGD. Participants were

predominately white, middle-aged females who were, on average, 2.5 years post-loss (Skritskaya et al., 2014). Generally speaking, most participants were spouses/significant others, children, or parents of the deceased. A similar proportion of participants were bereaved by natural and sudden, unexpected losses.

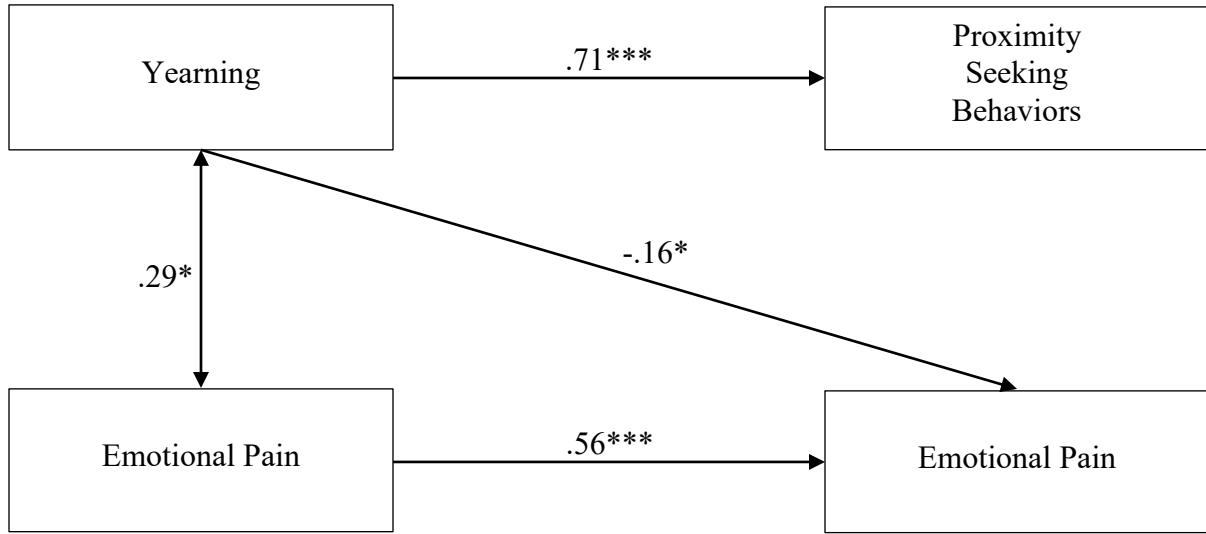


Figure 1. Model proposed by Skritskaya et al. This figure demonstrates the relationship between emotional pain and experiential avoidance as mediated by yearning, as hypothesized by Skritskaya et al., 2014

* $p < .05$, ** $p < .01$, *** $p < .001$

The study defined emotional pain as the affect that occurs in response to the loss of a social connection, especially in response to reminders of the absence of their loved one or the death generally. The authors used three items from the Davidson Trauma Scale's reexperiencing subscale to measure their emotional pain construct, (i.e., "Have you had any painful images, memories, or thoughts of the event?," "Have you been upset by something which reminded you of the event?," and "Have you been physically upset by reminders of the event?"). Grief-related approach behaviors were defined as behaviors or cognitions initiated by bereaved individuals with the goal of increasing engagement with stimuli related to their deceased loved one (i.e., proximity seeking behaviors). Yearning was defined as an intense,

unsatisfied, and future-focused desire as a manifestation of separation distress (Skritskaya et al., 2014). Items from the Yearning in Situations of Grief Scale and the Craving in Complicated Grief Scale were used to measure both of these constructs. Finally, grief-related avoidance was defined as behaviors or cognitions of the bereaved person that aimed to prevent or decrease engagement with death-related stimuli (Skritskaya et al., 2014). Their avoidance construct was measured using items from the Grief-Related Avoidance Questionnaire. They found yearning to be more closely related to approach behaviors compared to avoidance behaviors (Skritskaya et al., 2014).

Rather than yearning explaining the relationship between emotional pain and grief-related avoidance, it may be more accurate to theorize grief-related avoidance as explaining the relationship between emotional pain and yearning (see Figure 2). If a bereaved person experiences recurrent, death-related imagery, they may be more likely to experience intense yearning for the deceased, in part because it is an effort at avoiding negative affect associated with the painful cues. EA explaining heightened levels of yearning, which has been shown to be strongly associated with proximity seeking, may more accurately explain why disruptions in the coping oscillation process in the DPM occur.

Within current grief and bereavement research, emotional pain, EA, and yearning have been identified as important constructs that prominently manifest in pathological forms of grief (Boelen, van den Bout, et al., 2006; Boelen, van den Hout, et al., 2006; O'Connor et al., 2008; Nam, 2016; Shear et al., 2007; Skritskaya et al., 2014; Zisook & Shear, 2009). Previous literature conceptualizes yearning as an emotional state which leads to proximity seeking behaviors (Sharra & Hazan, 2008), and emotional pain as an emotional state which leads to grief-related avoidance (Boelen, van den Bout, et al., 2006; Boelen, van den Hout, et

al., 2006), but there is a gap in the literature explaining how these variables may interact and perpetuate one another. The current study aims to reconceptualize the role of avoidance in the relationship between emotional pain and yearning. Here, it is hypothesized that higher levels of EA may explain increases in yearning in the relationship between emotional pain and yearning. Exploratory analyses were also conducted to examine these hypothesized effects at different levels of PGD symptom severity.

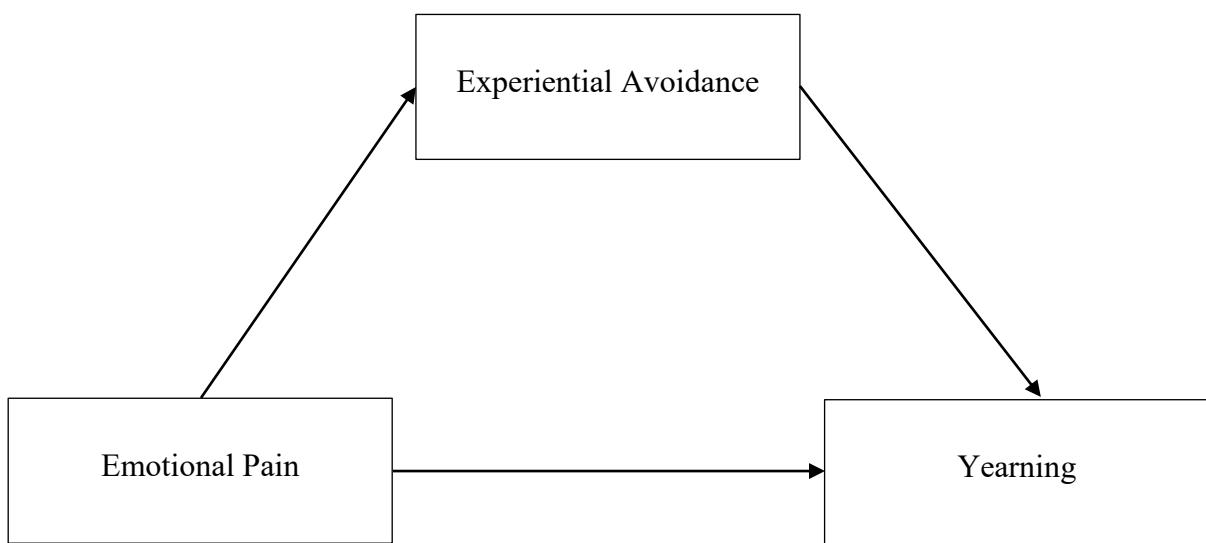


Figure 2. Proposed Mediation Model. This figure demonstrates the relationship between emotional pain and yearning as mediated by experiential avoidance, as hypothesized in the present study.

Hypotheses and Exploratory Analyses

Exploratory Analysis 1: Consistent with other studies we expected the overall rate of PGD in this college sample to be between 2-16%.

Hypothesis 1: Positive, statistically significant associations will exist among emotional pain, EA, and yearning.

Hypothesis 2: When modeled simultaneously, emotional pain and EA will both be significantly associated with yearning.

Hypothesis 3: When examined using a mediation model, there will be a significant, indirect effect of emotional pain on yearning via EA.

Exploratory Analysis 2: Severity of PGD symptomology endorsed will moderate the effects in the aforementioned mediation model. It was predicted that more severe PGD symptom severity would significantly increase the indirect effect proposed in the mediation model compared to low PGD symptom severity. Such results would suggest that increased yearning, a key feature endorsed by people with PGD, may be explained by differences in how individuals respond to felt emotional pain (i.e., use of maladaptive EA).

CHAPTER 2

METHODOLOGY

Participants

This study was performed using data collected from a larger, multi-site study exploring the prevalence of trauma exposure in college students with the goal of identifying cognitive, affective, and familial factors related to long-term adjustment to traumatic event exposure. Data were collected from participants ($N = 1186$) on two United States university campuses. One campus was a public university located in the Mid-West region of the U.S. ($n = 953$) and one was a private university in the Mid-Atlantic region of the U.S. ($n = 233$). As described below (Procedures), participants in the current study represent individuals from the larger study who endorsed experiencing the sudden or unexpected loss of a family member or close friend on their responses to the National Stressful Events Survey ($n = 606$; Kilpatrick, Resnick, Baber, Guille, & Gros, 2011). The items of this survey used to determine which participants reported a history of loss are described below (Measures).

Procedures

At both universities, undergraduate participants were recruited via psychology classes and received course credit or extra credit for their research participation. Prior to starting the online survey, potential participants were provided additional information concerning the nature of the study in order to determine their interest in consenting to participate. All subjects were required to be at least 18 years old. Participants were informed that they were not required to complete the survey and could stop at any time. Participants who gave consent completed a battery of assessment measures online using REDCap, a secure, HIPAA compliant, web-based application, for data collection (Harris et al., 2009). Participants

completed their surveys in one session. Once finished with their survey, participants were thanked and provided onscreen debriefing information, including suggestions for assistance if any distress occurred while participating in the study. Survey completion took approximately 45 minutes. Once data collection was complete, data from those who endorsed experiencing the loss of a loved one in any of the National Stressful Events Survey bereavement items were compiled. All study procedures and materials were approved by the Institutional Review Boards at both universities.

Survey Measures

Demographics. Demographic information collected and utilized for the present study included age, male/female identity, and racial and ethnic identity.

Sudden/Unexpected Loss History. The National Stressful Events Survey (NSES; Kilpatrick et al., 2011) includes 25 closed-ended questions measuring exposure to potentially traumatic experiences. The NSES has been used in large-scale epidemiological research assessing the prevalence of trauma exposure among adults in the U.S. (Kilpatrick et al., 2013). The NSES includes six items that ask about exposure to different types of loss categorized as potentially traumatic experiences due to their sudden or unexpected nature. These six items were used in to identify participants in the larger sample who had experienced potentially traumatic losses for inclusion in the current study. In these items participants were asked to indicate if they had lost a family member or close friend in the following ways: 1. Murdered or killed by a drunk drivers, 2. Suicide or died from an overdose of alcohol or drugs, 3. Killed in a plane crash, car wreck, fire, or other accident, 4. Killed in a war, riot, or terrorist attack, 5. Killed by a natural disaster such as an earthquake or hurricane, 6. Died suddenly or unexpectedly due to a heart attack, stroke, or cancer.

Answer options included “No,” “Yes,” and “Prefer Not to Answer.” If participants endorsed experiencing more than one loss type, they were asked to indicate which loss was the most stressful or worst loss.

Prolonged Grief. The Prolonged Grief – 13 (PG-13; Prigerson et al., 2009) measures symptoms of PGD. Items 1 and 2 require participants to indicate the frequency in which they have experienced separation distress (e.g., yearning and/or feelings of intense emotional pain, sorrow, or grief), in the last month on a 5-point scale (*1 = not at all, 2 = at least once, 3 = at least once a week, 4 = at least once a day, 5 = several times a day*). The third item asks participants to indicate whether or not they have experienced the symptoms listed in items 1 and 2 at least daily and after six months since their loved one’s death. Items 4 to 12 ask about a variety of cognitive, emotional, and behavioral grief-related symptoms. Aside from items 4 and 5, which are answered using the same scale as items 1 and 2, this group of items are rated on a 5-point scale of participants’ current symptom intensity (*1 = not at all, 2 = slightly, 3 = somewhat, 4 = quite a bit, 5 = overwhelmingly*). Item 13 asks participants whether or not they have experienced significant reductions in functioning (e.g., social, occupational, or other areas). The PG-13 has demonstrated good psychometric properties as a measurement of PGD in a variety of bereaved populations (Delalibera, Coelho, & Barbosa, 2011; Field et al., 2014; Gökler Danışman, Yalcinay, & Yıldız, 2017; Maciejewski, Maercker, Boelen, & Prigerson, 2016; Pohlkamp, Kreicbergs, Prigerson, & Sveen, 2018; Tsai et al., 2018). The measure demonstrated excellent internal consistency ($\alpha = .91$) in the present study.

Emotional Pain. To measure emotional pain, as conceptualized in previous literature as psychological reexperiencing symptoms, this study used reexperiencing items from the PTSD Checklist for DSM-5 (PCL-5). The PCL-5 (Weathers et al., 2013) is a 20-item self-

report measure of PTSD symptoms where each item corresponds to one of the *DSM-5* (APA, 2013) PTSD symptom criteria. Participants are asked to indicate how much they have been bothered by each item in the past month on a 5-point scale ranging from 0 (*not at all*) to 4 (*extremely*). Reexperiencing questions that map onto the three items from the Davidson Trauma Scale used in the aforementioned Skritskaya et al. (2014) study to measure emotional pain include items 1 (“Repeated, disturbing, and unwanted memories of the stressful experience”), 4 (“Feeling very upset when something reminded you of the stressful experience”), and 5 (“Having strong physical reactions when something reminded you of the stressful experience [for example, heart pounding, trouble breathing, sweating]”). Total scores for the emotional pain construct were calculated by summing participant answers to items 1, 4, and 5. Total scores will range from 0 to 12, with high scores indicating higher levels of reexperiencing-related distress (i.e., emotional pain). The construct demonstrated good internal consistency ($\alpha = .86$) in the present study.

Experiential Avoidance. The Brief Experiential Avoidance Questionnaire (BEAQ; Gamez et al., 2014) is a 15-item measure examining a range of EA-related content. Participants were asked to indicate the extent to which they agree or disagree with each item on a 6-point scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Sample items include, “I rarely do something if there is a chance that it will upset me” and “I would give up a lot not to feel bad.” Total scores are calculated by reverse coding item 6 (“Fear or anxiety won’t stop me from doing something important”), then summing all items. Total scores can range from 15 (low endorsement of EA) to 90 (high endorsement of EA). The BEAQ has been validated using an undergraduate sample and demonstrated high internal

consistency (Gamez et al., 2014). The measure showed good internal consistency ($\alpha = .84$) in the present study.

Yearning. The Yearning in Situations of Loss (YSL) – Bereaved Scale (O'Connor & Sussman, 2014) is a 21-item self-report measure assessing the frequency of yearning and longing experiences in relation to the deceased (e.g., “I find myself wishing that things could be the way they were when I was with _____,” “I like to imagine what I would do if _____ were with me”). Response options range from 1 to 5 (1 = *never*, 3 = *sometimes*, 5 = *always*). Total scores are calculated by summing all item responses and range from 21 (no presence of yearning or longing for the deceased) to 105 (constant yearning or longing for the deceased). The YSL has demonstrated good psychometric properties in past research (O'Connor & Sussman, 2014). The measure exhibited excellent internal consistency ($\alpha = .96$) in the present study.

Data Analysis

A post-hoc power analysis was conducted to ensure our sample was large enough to detect significant effects in our proposed mediation analysis. Descriptive statistics were then used to examine sample demographic and loss-related characteristics. Demographic information (i.e., sex, age, race, ethnicity) and loss-related information (i.e., time since loss, age at time of loss, being present at the scene of death prior to removal of the deceased) were also included in preliminary correlation analyses to determine if these variables should be included as controls in primary analyses.

Exploratory Analysis 1: Descriptive analyses were run to determine PGD symptom severity and prevalence rates of PGD in our sample. Similar to methods used in previous

research, a cut score of 26 was used to determine positive screenings for PGD (Wenn, O'Connor, Breen, Kane, & Rees, 2015).

Hypothesis 1: Associations between constructs of interest (i.e., emotional pain, EA, yearning, and PGD) were assessed using Pearson and Spearman correlation statistics. Items 1 (“In the past month, how often have you felt yourself longing or yearning for the person you lost?”), 2 (“In the past month, how often have you had intense feelings of emotional pain, sorrow, or pangs of grief related to the lost relationship?”), and 4 (“In the past month, how often have you tried to avoid reminders that the person you lost is gone?”) from the PG-13 were omitted in this analysis and all subsequent analyses to remove any overlapping variance with our yearning, emotional pain, and EA constructs, respectively.

Hypothesis 2: A simultaneous regression analysis was conducted to examine whether emotional pain predicted yearning, while accounting for variance explained by EA and any other significantly associated demographic variables.

Hypothesis 3: A mediation analysis was conducted using model 4 of the PROCESS macro for SPSS (Hayes, 2013) to evaluate the association between emotional pain and yearning and whether an association was mediated by EA. The mediation analysis was run with 5000 bootstrapping resamples. Indirect effect significance was determined by examining the upper and lower bootstrapped 95% confidence intervals (CI). Effect size was examined to determine the amount of variance explained by the mediator.

Exploratory Analysis 2: To determine if our exploratory moderated mediation analysis was warranted, a regression analysis was run to examine yearning, EA, and emotional pain as predictors of PGD symptom severity, while accounting for other associated demographic and loss-related variables. Finally, a moderated mediation analysis was

conducted using model 7 of the PROCESS macro for SPSS (Hayes, 2013), to evaluate the indirect effect of emotional pain on yearning through EA when moderated by PGD symptom severity. Interaction effect significance was determined by examining the upper and lower bootstrapped 95% CI.

CHAPTER 3

RESULTS

Post-Hoc Power Analysis and Data Transformations

A post hoc power analysis was run using a web application designed to compute Monte Carlo power analysis for indirect effects (Schoemann, Boulten, & Short, 2017). Power analysis for the simple mediation indicated a power of .71 with our sample size, indicating that we had a 71% chance of detecting a statistically significant effect when one is present. Data were examined for outliers and normal distributions. Following guidelines suggested by Tabachnick and Fidell (2007), data for our emotional pain and yearning constructs were transformed on SPSS using the square-root method because they had moderately positive skewness. Data for our PGD symptom severity construct (i.e., sum scores of PG-13 without items 1, 2, and 4) were transformed using the logarithmic method because they had substantially positive skewness. Data for our EA construct did not demonstrate significant skewness and therefore were not transformed. Transformed data were used in all analyses aside from the PGD prevalence rate analysis.

Demographic and Loss-Related Prevalence Rates

Within the full sample ($N = 1186$) of the larger study, 606 participants were identified as having a history of sudden, unexpected loss and were included in the present study. Participants had an average age of 21.25 years ($SD = 4.71$). The majority of participants identified as female ($n = 469$; 77.4%) with remaining individuals identifying as male ($n = 137$; 22.6%). In regard to racial identity, the majority of participants identified as White ($n = 397$; 65.5%). Remaining participants identified as American Indian or Alaskan Native ($n = 12$; 2%), Asian ($n = 59$; 9.7%), African American ($n = 110$; 18.2%), Pacific Islander ($n = 3$;

0.5%), and/or Other ($n = 58$; 9.6%). Additionally, 9.4% of participants ($n = 57$) identified as being of Hispanic origin or descent. Cumulative race and ethnicity percentages exceed 100% because participants were able to indicate all self-relevant response options.

In regard to types of loss experienced, participants indicated having had a close family member or close friend die in the following ways: 111 (18.3%) to murder or being killed by a drunk driver; 217 (35.8%) by suicide or by overdose of alcohol or drugs; 215 (35.3%) by plane crash, car wreck, fire, or other accident; 29 (4.8%) due to war, riot, or terrorist attack; 12 (2%) due to natural disaster; and 412 (68%) due to sudden heart attack, stroke, or cancer. Cumulative loss type percentages exceed 100% because participants were able to select multiple responses. When asked more specific loss-related questions, participants responded to items in relation to their worst or most stressful loss. When asked their relationship to the deceased, 51 (8.4%) of participants indicated it was their parent, 5 (0.8%) indicated it was their spouse or significant other, 3 (0.5%) indicated it was their child, 8 (1.3%) indicated it was their sibling, 135 (22.3%) indicated it was their grandparent, 157 (25.9%) indicated it was another relative, and 221 (36.5%) indicated it was a close friend. Average age at the time of loss was 15.29 years ($SD = 5.23$). Eighty-three participants (13.7%) indicated that they were present at the scene of injury/death before their loved one was removed. Average time since loss was 5.88 years ($SD = 4.7$).

Exploratory analysis examining overall PGD symptom severity and prevalence rates of PGD in our sample indicated average PG-13 scores within the sample to be 18.07 ($SD = 7.42$). PG-13 scores range from 11 to 49. With regard to Exploratory Analysis 1, applying a cut-score of 26 to the PG-13 showed 89 (15.4%) participants screening positive for PGD. After accounting for time since loss using the 6-month duration item from the PG-13 (item

3), 62 (10.2%) participants screened positive for PGD. The prevalence rates using cut score and using cut score plus time fall into the range seen in previous studies examining PGD in young adults. Prevalence rate and demographic comparisons with other published college student samples are shown in Table 1.

Table 1. Demographic and prevalence of prolonged grief comparisons between the current sample, Balk et al. (2010), and Herberman-Mash et al. (2014)

Variable	Current Sample %	Balk et al. %	Herberman-Mash et al. %
Female	77.4	59	82
Male	22.6	41	18
White	65.5	69	87.2
African American	18.2	12	5.1
Asian or Asian American	9.7	3	1.9
American Indian or Alaskan Native	2	3	--
Pacific Islander	0.5	--	--
Hispanic or Latinx	9.4	4	1.9
Other Racial/Ethnic Identities	9.6	9	3.8
Prevalence of Prolonged Grief	10.2	1.7	16

Note. Age variable was not included for comparison due to lack of mean reporting in Balk et al. Loss-related variables were not included due to differences in reporting between studies.

Comparisons of demographic information, loss type prevalence rates, and PGD symptom severity between our two sites are shown in Table 2. Compared to the public, Mid-West university, participants from the private, Mid-Atlantic university were significantly younger, there were more participants represented that identified their race as Other, and they experienced their worst loss at younger ages on average. In the public, Mid-West university there were significantly more respondents who identified as female and African American compared to the private, Mid-Atlantic university. No significant differences between sites were demonstrated in remaining racial identities, types of loss experiences endorsed,

presence at the scene of death or injury, time since loss, prevalence rates of PGD, or PGD symptom severity.

Table 2. Demographics, loss-related variables,, and prevalence of prolonged grief comparisons between study sites

Variable	Total Sample (n = 606)	Public Mid-West Site (n = 516)	Private Mid-Atlantic Site (n = 90)	Test Statistic
	M (SD)	M (SD)	M (SD)	t
Age	21.25 (4.61)	21.65 (4.98)	18.98 (1.08)	10.77***
	n (%)	n (%)	n (%)	χ^2
Sex				6.95**
Female	469 (77.4)	409 (79.3)	60 (66.7)	
Male	137 (22.6)	107 (20.7)	30 (33.3)	
White	397 (65.5)	334 (64.7)	63 (70)	0.94
African American	110 (18.2)	104 (20.2)	6 (6.7)	9.38**
Asian or Asian American	59 (9.7)	50 (9.7)	9 (10)	0.01
American Indian or Alaskan Native	12 (2)	12 (2.3)	--	--
Pacific Islander	3 (0.5)	3 (0.6)	--	--
Hispanic	57 (9.4)	47 (9.1)	10 (11.1)	0.31
Other	58 (9.6)	44 (8.5)	14 (15.6)	4.47*
Murdered	111 (18.3)	92 (17.8)	19 (21.1)	0.68
Suicide or overdose	217 (35.8)	188 (36.4)	29 (32.2)	1.20
Accident	215 (35.5)	186 (36)	29 (32.2)	0.60
War, riot, or terrorist attack	29 (4.8)	24 (4.7)	5 (5.6)	0.66
Natural disaster	12 (2)	11 (2.1)	1 (1.1)	0.41
Sudden illness	412 (68)	354 (68.6)	58 (64.4)	0.48
Present at scene	83 (13.7)	69 (13.4)	14 (15.6)	0.38
PGD Prevalence				
Cut score	89 (14.7)	79 (15.3)	10 (11.1)	0.92
Cut score + time	62 (10.2)	56 (10.9)	6 (6.7)	1.32
	M (SD)	M (SD)	M (SD)	t
PGD symptom severity	18.07 (7.42)	18.21 (7.41)	17.23 (7.45)	1.13
Age at loss	15.29 (5.23)	15.57 (5.33)	13.73 (4.29)	3.02*
Time since loss	5.88 (4.7)	6.00 (4.76)	5.22 (4.26)	1.40

Note. Cut score used to determine PGD prevalence was 26. PGD prevalence variable including time cut individuals whose loss occurred within the last 12 months.

*p < .05, **p < .01, ***p < .001

Table 3. Pearson and Spearman correlations between demographic variables, loss-related variables, emotional pain, experiential avoidance, yearning, and prolonged grief symptom severity

Variable	1	2	3	4	5	6	7	8	9
1. Age	--								
2. Race	.14**	--							
3. Male/Female	-.06	.04	--						
4. Time Since Loss	.38**	.02	-.07	--					
5. Age at Loss	.55**	.14**	.01	-.57**	--				
6. Present at Scene	.06	.03	.03	.03	.02	--			
7. EA	-.04	.01	.05	-.00	-.03	-.03	--		
8. PGD	-.04	-.04	.02	-.19**	.14**	.07	.30**	--	
9. Emotional Pain	-.02	-.01	.06	-.04	.00	-.03	.38**	.46**	--
10. YSL	.03	-.03	.08*	-.10*	.11*	.14**	.21**	.68**	.31**

Note. Race was measured using a dichotomous variable where non-White = 0 and White = 1.

Male/Female was measured using a dichotomous variable where male = 0 and female = 1.

Present at Scene is a dichotomous variable were no = 0 and yes = 1. Present at Scene = Present at scene of death or injury prior to removal of deceased; EA = Brief Experiential Avoidance Questionnaire; PGD = Prolonged Grief – 13 without items 1, 2, and 4; YSL = Yearning in Situations of Loss. Cell sizes vary slightly due to missing data.

* $p < .05$ ** $p < .01$ *** $p < .001$

Correlation Analyses

With regard to Hypothesis 1, associations between demographic variables, loss-related variables, emotional pain, EA, yearning, and PGD symptom severity are presented in Table 3. Emotional pain, EA, and yearning were all significantly and positively associated with each other. Significant, positive associations were also found between PGD symptom severity and all three primary constructs of interest. Time since loss had significant negative associations with both PGD symptom severity and yearning. Age at time of loss had significant positive associations with both PGD symptom severity and yearning. Being female and present at the scene of death or injury prior to removal of body were also significantly associated to yearning. To ensure omission of PG-13 items did not significantly

change results, the same correlation analyses were run using total scores calculated with all items. When using all items, PG-13 was significantly associated with being present at the scene of death/injury ($r = .09, p = .046$). No other differences in results emerged.

Regression Analyses

To address Hypothesis 2, a simultaneous regression analysis was used to examine whether emotional pain predicted yearning, while accounting for the variance explained by EA and other significantly associated demographic and loss-related variables found in correlation analyses (i.e., sex, time since loss, age at time of loss, being present at the scene of death or injury prior to removal of the deceased). As seen in Table 4, emotional pain, EA, and being present at the scene of death or injury prior to removal of the deceased were significant predictors of yearning when accounting for variance explained by all other variables significantly associated with yearning. Sex, time since loss, and age at loss were no longer significantly associated with yearning after accounting for the variance explained by other associated variables. An additional regression was run including PGD symptom severity scores as a predictor. After adjusting for overall grief severity in this manner, none of the single grief indicators of EA or EP were uniquely associated with yearning given that yearning and PGD are strongly interrelated constructs.

To determine if our exploratory moderated mediation analysis was warranted, an additional regression analysis was run to examine yearning, EA, and emotional pain as predictors of PGD symptom severity, while accounting for age and times since loss. As seen in Table 4, yearning, EA, and emotional pain were all significant predictors of PGD severity. Time since loss remained a significant predictor. However, age at time of loss was no longer significant.

Table 4. Simultaneous regression analyses modeling predictors of yearning and prolonged grief symptom severity

Variable	β	<i>t</i>	<i>p</i>
Yearning			
Male/Female	.07	1.65	.10
Time Since Loss	-.05	-0.95	.34
Age at Loss	.09	1.80	.07
Present at Scene	.18	4.36	<.00
EA	.09	2.08	.04
Emotional Pain	.25	5.75	<.00
PGD			
Time Since Loss	-.12	-3.35	<.01
Age at Loss	.04	1.02	.31
Emotional Pain	.25	7.48	<.00
EA	.10	3.13	<.01
Yearning	.57	18.18	<.00

Note. Male/Female was measured as a dichotomous variable where male = 0 and female = 1. Present at Scene was measured as a dichotomous variable where no = 0 and yes = 1. EA = Brief Experiential Avoidance Questionnaire; PGD= Prolonged Grief-13 without items 1, 2, and 4. Cell sizes vary slightly due to missing data.

Mediation Analysis

As presented in Figure 3, a mediation model was evaluated using the PROCESS macro for SPSS (model 4) to investigate the mediating effect of EA in the relationship between emotional pain and yearning. Results indicate that emotional pain was a significant predictor of EA, $b = 4.28$, $t(581) = 9.78$, $p < .001$, and that EA was a significant predictor of yearning, $b = .01$, $t(581) = 2.39$, $p = .02$. Approximately, 11% of the variance in yearning was accounted for by the predictors, $F(2,580) = 34.62$, $p < .001$, $R^2 = .11$. Model results indicate a significant direct effect of emotional pain on yearning, $b = .35$, $t(581) = 6.49$, $p < .001$, as well as an indirect effect of emotional pain on yearning via EA, $b = .05$, 95% CI [.0086, .0920].

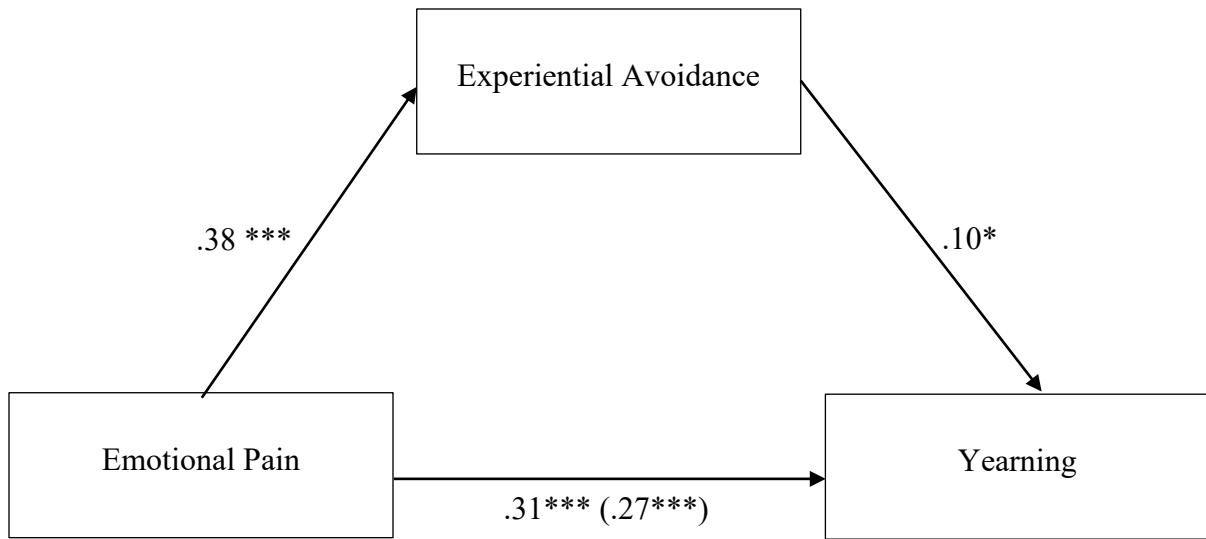


Figure 3. This figure demonstrates the relationship between emotional pain and yearning as mediated by experiential avoidance.

* $p < .05$, ** $p < .01$, *** $p < .001$

Due to the significance of being present at the scene of death or injury variable in the regression analyses, an additional mediation analysis was run including this variable as a covariate. Results indicate that emotional pain remained a significant predictor of EA, $b = 4.28$, $t(558) = 9.50$, $p < .001$. Being present at the scene was not a significant covariate in this path, $b = -.64$, $t(558) = -.49$, $p = .62$. EA remained a significant predictor of yearning, $b = .01$, $t(558) = 2.52$, $p = .01$. Being present at the scene was a significant covariate in this path, $b = .58$, $t(558) = 3.95$, $p < .001$. Approximately, 12% of the variance in yearning was accounted for by the predictors, $F(2,557) = 37.97$, $p < .001$, $R^2 = .12$. Model results indicate a significant direct effect of emotional pain on yearning, $b = .35$, $t(558) = 6.44$, $p < .001$, as well as an indirect effect of emotional pain on yearning via EA, $b = .05$, 95% CI [.0101, .0953], when including being present at the scene as a covariate.

Moderated Mediation Analysis

A moderated mediation model was evaluated using the PROCESS macro for SPSS (model 7) to investigate Exploratory Analysis 2, the mediating effect of EA in the relationship between emotional pain and yearning when moderated by PGD symptom severity. Results indicated that the interaction effect was not significant, $b = -.42$, $t(565) = -.14$, $p = .89$. That is, the conditional indirect effect of emotional pain on yearning via EA was statistically significant at low PGD symptom severity, $b = .04$, $SE = .02$, $95\% CI [.006, .077]$; medium PGD symptom severity, $b = .04$, $SE = .02$, $95\% CI [.006, .076]$; and high PGD symptom severity, $b = .04$, $SE = .02$, $95\% CI [.005, .081]$. Levels of symptom severity were determined using one standard deviation below and above the mean. Additional analyses run using PG-13 scores with all items did not indicate different results.

CHAPTER 4

DISCUSSION

Recent increases in the number of sudden and unexpected forms of death in the U.S. (CDC, 2017; James, 2018; Stone et al., 2018) suggests a coinciding increase in the nation's bereaved population. While the majority of bereaved individuals may not meet formal criteria for PGD, many people will experience distressing PGD symptoms post loss, such as emotional pain, EA, and yearning. The risk for developing these PGD symptoms is heightened for individuals who are suddenly and unexpectedly bereaved (Newson et al., 2011). Current grief and bereavement research points to emotional pain, EA, and yearning as hallmark features of both typical and prolonged grief. However, limited research has examined how these constructs relate to each other or whether they relate to each other in different ways at varying levels of grief severity. The present study suggests EA partially explains the association found between emotional pain and yearning across all levels of PGD symptom severity.

Prevalence Rates

Consistent with other studies examining bereaved young adult populations, our overall prevalence rate of PGD fell between 2-16% with 10.2% of our sample being over the cut score to screen positive for PGD and having had symptoms persist for at least six months. Compared to previous studies, our sample has slightly more racial diversity represented. However, the majority of our sample identified as White. When examining associations between race and our constructs of interest using a dichotomous variable of White versus non-White identifying individuals, no significant relationships were found. However, a significant relationship was found between race and age at time of loss, where non-White

individuals experienced losses at younger ages than White individuals. Since our age at time of loss variable was significantly associated with PGD symptom severity and yearning scores, this might be an area of future consideration in research. Generally, in examining prevalence rates in our sample with previous studies looking at the same age group, a lack of racially diverse representation is apparent across studies. In regard to differences in prevalence of female versus male individuals, similar to Herberman-Mash et al. (2014), our sample identified as predominately female. Identifying as female was associated with higher yearning scores. However, our regression analyses suggest variance in yearning related to female identity is no longer significant when accounting for variance explained by our other variables of emotional pain, EA, and being present at the scene of death or injury prior to removal of the deceased. Overall, when comparing prevalence rates of PGD in our sample with previous studies examining a similar age group, our rates appear consistent.

Associated Loss-Related Variables

It is important to acknowledge the significant associations found between our constructs of interest and loss-related variables including time since loss, age at time of loss, and being present at the scene of death or injury prior to the removal of the deceased. The negative relationships between time since loss and PGD symptom severity and yearning are expected. Although grief symptoms and yearning experiences may continue indefinitely after the loss of a loved one, it is typical for intensity and frequency of these reactions to decrease over time. The significant positive associations found between age at time of loss and PGD symptom severity and yearning may also be explained by recency of the loss.

Many possible explanations exist for the significant positive association between being present at the scene of death or injury prior to the removal of the deceased and

frequency and intensity of yearning. Those who are present at the scene of death or injury may be more likely to experience death-related imagery. As previously noted, dying imagery has been found to be associated with various mental health outcomes, such as PTSD, depression, and PGD (Baddeley et al., 2015). Moreover, imagery related to reuniting with the deceased (i.e., a facet of yearning) has been shown to be significantly associated with relationship quality with the deceased and it has been posited that this form of imagery may be compensatory for reenactment-related dying imagery experienced by bereaved individuals (Baddeley et al., 2015). Yearning has been found to significantly mediate the relationship between death-related imagery and PGD symptoms (Hardt, Eddinger, Henschel, & Williams, 2018). So, it seems plausible that, as narrative theorists have suggested, imagining being reunited with a deceased loved one may be a natural, protective buffer against the disruptive imagery associated with a person's dying, especially when a loved one was present and witnessed the death (Rynearson, 2012). Ultimately, associations between being present at the scene and yearning may be explained by bereaved individuals' conscious or subconscious efforts to compensate for likely increased painful experiences of death-related imagery.

Although our present at scene variable did not demonstrate strong significant associations with our emotional pain construct that included reexperiencing symptoms like dying-related imagery, this may be due to our emotional pain construct being narrowly defined in terms of responses to acute stress reactions experienced by participants. Emotional pain may manifest in forms other than the extent to which individuals are bothered by their stress reactions to reminders of the death. Indeed, we did not measure the frequency, intensity, or types of death related reminders and reactions. Instead, our emotional pain construct measured how bothered individuals were by the repeated unwanted reminders of

the death, feeling upset by reminders of the death, and having strong physical responses to reminders of the death. Additionally, the lack of strong significant associations may be due to differences in measurement (i.e., creating our own construct).

Another possible explanation for the association between presence at the scene and yearning may be related to the closeness of the relationship between the bereaved person and deceased. The bereaved individual may have been present at the scene of loss because they lived in close proximity and/or had significant roles in each other's lives. If this is the case, they may experience increased yearning due to the loss of a person they were highly attached to or dependent upon. Indeed, relationship quality with the deceased has been found to be associated with increased yearning compared to other grief related reactions, such as depression (Stroebe, Abakoumkin, & Stroebe, 2010). Because presence at the scene remained a significant predictor of yearning after accounting for emotional pain and EA but did not significantly impact our proposed mediation, explanations and implications for this significant association should be considered for future research.

Relationships between Emotional Pain, Experiential Avoidance, and Yearning

Emotional pain, EA, and yearning are often cited as important areas of focus in regard to the development of prolonged or complicated grief reactions in bereaved individuals. However, as previously noted, there has been limited research examining how these three constructs interact. As expected, in our data, positive associations were evident among these constructs. Furthermore, when modeled simultaneously, emotional pain and EA were significant predictors of yearning. Similar to previous research, we found emotional pain in the form of reexperiencing symptoms to be a strong predictor of yearning frequency and severity. Although previous research has focused primarily on yearning resulting in approach

rather than avoidance behaviors, limited attention is focused on the role avoidance may have in explaining yearning. Our results indicate that EA has a significant mediating effect on the relationship between emotional pain—in the form of reexperiencing symptoms—and yearning. This supports our assertion that bereaved individuals who experience recurrent, death-related imagery may be more likely to experience intense yearning for the deceased in part due to an effort in avoiding negative affect associated with the painful cues.

When adding PGD symptom severity as a moderator to our mediation model there was not a significant interaction effect. However, there were significant effects across different levels of PGD symptom severity, which suggests this relationship is not unique at different severity levels. Indeed, yearning experiences associated with emotional pain may be partially driven by avoidance, regardless of symptom severity. The model, though, may be missing another key construct. Recent research examining the extent to which bereaved individuals desire particular reinforcers and can tolerate aversive stimuli (i.e., motivational sensitivity) found greater drive sensitivity (a person's motivation to follow goals), to be associated with greater PGD symptom severity in those with high EA (Williams, Hardt, Henschel, & Eddinger, 2019). Since our results suggest EA has a mediating effect in the relationship between emotional pain and yearning, this may aid in explaining why those with high drive sensitivity are likely to demonstrate greater PGD symptom severity. If an individual has a more sensitive drive system and high EA tendencies, they may be more likely to persist in goals of maintaining connections with the deceased through yearning. This would lead to the persistence of grief symptom severity due to the consequential persistent lack of approaching death-related imagery and other loss-related experiential symptoms.

Individual differences in motivational sensitivity may affect the extent to which bereaved persons utilize yearning as a means of managing their emotional pain.

Clinical Implications

Understanding how emotional pain, EA, and yearning interact can help guide clinicians working with bereaved individuals who are experiencing persistent grief and aid in developing treatments or interventions that target mechanisms that may be leading to persistent and intense grief responses in bereaved individuals. Although yearning is often connected to approach behaviors and engaging with loss-oriented stressors rather than avoidance behaviors, our data suggests EA contributes to increases in yearning. Clinicians may be able to decrease yearning by targeting EA. As suggested by Williams et al. (2019), individuals with PGD may be persistent in approach behaviors related to maintaining their connections with the deceased. However, in a sense, by engaging in approach behaviors yearning becomes a way of avoiding the painful experiences related to the reality of the loved one's death. Using behavioral activation to combat the negative emotionality experienced when reminded of the loss may be an effective intervention because it introduces new pleasurable activities the bereaved individual can engage in that are not related to the deceased. Consequently, rather than engaging in yearning and proximity seeking to combat their negative experiences when reminded of the loss, the bereaved individuals would be able to engage in other meaningful and pleasurable activities. Ultimately, this would aid in working toward acceptance of the loss and the integration of the loss into their life. In addition to behavioral activation, including a component of exposure to such painful cues may aid in decreasing frequency and intensity of yearning and consequential proximity seeking behaviors. Exposure may lead to a decrease in intensity of distress related to the

painful memories of the loss and aid in the integration and confrontation of the reality of the loss into the bereaved one's current life (Boelen, de Keijser, van den Hout, & van den Bout, 2007; Eisma et al., 2015). Ultimately, the tendency to engage in yearning and proximity seeking behaviors may lessen overtime because they would no longer be used as frequently as a way for the bereaved individual to manage their intense emotional pain and avoid the reality of the loss.

Limitations

Several limitations exist within this study. First, the data are self-report and therefore scores are reflective of participants' perceptions of their symptoms and responses. Second, the data are cross-sectional. Consequently, we cannot draw firm conclusions concerning causation in our data. Third, we did not have an emotional pain scale. Although our emotional pain variable parallels constructed variables in previous studies, using a validated measure would make our conclusions stronger. Finally, our data were collected from an actively enrolled college student sample. The participants' active enrollment status in college suggests that these students may be relatively well-functioning, which may indicate that our sample does not represent a full range of PGD symptom severity. Although our PGD prevalence rates are comparable to previous studies, across studies there was also a lack of representation in various demographics (e.g., socioeconomic status, race, sex). The extent to which our data generalize to broader samples of sudden loss survivors is unclear. Even so, these results add to the body of literature aiming to further understand the relationships between emotional pain, EA, and yearning; suggesting that EA in part explains yearning associated with emotional pain. Furthermore, these results may add to new literature concerning the role of motivational sensitivity in PGD.

APPENDIX

Demographics

1. Are you male or female?
 Male
 Female
2. Please enter your age in years: _____
3. What is your year in school?
 Freshman
 Sophomore
 Junior
 Senior
4. Have you ever served in the Armed Forces, National Guard, or Military Reserves?
 Yes
 No
5. Race: Which category do you fall into?
 Pacific Islander
 American Indian or Alaskan Native
 Asian
 African American
 White
 Other
 If other, please specify:
6. Are you of Hispanic origin or descent?
 Yes
 No

National Stressful Events Survey – Sudden/Unexpected Loss History

Introduction text: Most people experience the death of an immediate family member (i.e., a parent, child, spouse or live-in romantic partner, brother or sister) or close friend at some point during their lives, and such deaths can be extremely upsetting. However, many people tell us that sudden, unexpected deaths and/or deaths that occur as a result of violence are particularly stressful.

19. Has a close family member or close friend of yours ever been murdered or killed by a drunk driver?

- Yes
- No
- Prefer Not to Answer

20. Has a close family member or close friend of yours ever committed suicide or died from an overdose or alcohol or drugs?

- Yes
- No
- Prefer Not to Answer

21. Has a close family member or close friend of yours ever been killed in a plane crash, car wreck, fire, or other accident?

- Yes
- No
- Prefer Not to Answer

22. Has a close family member or close friend of yours ever been killed in a war, riot, or terrorist attack?

- Yes
- No
- Prefer Not to Answer

23. Has a close family member or close friend of yours ever been killed by a nature disaster such as an earthquake or hurricane?

- Yes
- No
- Prefer Not to Answer

24. Has a close family member or close friend of yours ever died suddenly or unexpectedly due to a heart attack, stroke, or cancer?

- Yes
- No
- Prefer Not to Answer

NOTE: Please do not include cases in which an elderly relative or friend died of natural causes at a reasonably advanced age.

PART I INSTRUCTIONS: FOR EACH ITEM, PLACE A CHECK MARK TO INDICATE YOUR ANSWER.

1. In the past month, how often have you felt yourself longing or yearning for the person you lost?

- 1 = Not at all
 2 = At least once
 3 = At least once a week
 4 = At least once a day
 5 = Several times a day

2. In the past month, how often have you had intense feelings of emotional pain, sorrow, or pangs of grief related to the lost relationship?

- 1 = Not at all
 2 = At least once
 3 = At least once a week
 4 = At least once a day
 5 = Several times a day

3. For questions 1 or 2 above, have you experienced either of these symptoms at least daily and after 6 months have elapsed since the loss?

- No
 Yes

4. In the past month, how often have you tried to avoid reminders that the person you lost is gone?

- 1 = Not at all
 2 = At least once
 3 = At least once a week
 4 = At least once a day
 5 = Several times a day

5. In the past month, how often have you felt stunned, shocked, or dazed by your loss?

- 1 = Not at all
 2 = At least once
 3 = At least once a week
 4 = At least once a day
 5 = Several times a day

PART II INSTRUCTIONS: FOR EACH ITEM, PLEASE INDICATE HOW YOU CURRENTLY FEEL.	Not at all	Slightly	Somewhat	Quite a bit	Overwhelmingly
6. Do you feel confused about your role in life or feel like you don't know who you are (i.e., feeling that a part of yourself has died)?	1	2	3	4	5
7. Have you had trouble accepting the loss?	1	2	3	4	5
8. Has it been hard for you to trust others since your loss?	1	2	3	4	5
9. Do you feel bitter over your loss?	1	2	3	4	5
10. Do you feel that moving on (e.g., making new friends, pursuing new interests) would be difficult for you now?	1	2	3	4	5
11. Do you feel emotionally numb since your loss?	1	2	3	4	5
12. Do you feel that life is unfulfilling, empty, or meaningless since your loss?	1	2	3	4	5

PART III INSTRUCTIONS: FOR EACH ITEM, PLACE A CHECK MARK TO INDICATE YOUR ANSWER.

13. Have you experienced a significant reduction in social, occupational, or other important areas of functioning (e.g., domestic responsibilities)?

No
 Yes

PTSD Checklist for DSM-5 (PCL-5)

Instructions: Below is a list of problems that people sometimes have in response to a very stressful experience. Please read each problem carefully and then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

In the past month, how much were you bothered by:	Not at all	A little bit	Moderately	Quite a bit	Extremely
1. Repeated, disturbing, and unwanted memories of the stressful experience?	0	1	2	3	4
2. Repeated, disturbing dreams of the stressful experience?	0	1	2	3	4
3. Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?	0	1	2	3	4
4. Feeling very upset when something reminded you of the stressful experience?	0	1	2	3	4
5. Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?	0	1	2	3	4
6. Avoiding memories, thoughts, or feelings related to the stressful experience?	0	1	2	3	4
7. Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?	0	1	2	3	4
8. Trouble remembering important parts of the stressful experience?	0	1	2	3	4
9. Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)?	0	1	2	3	4
10. Blaming yourself or someone else for the stressful experience or what happened after it?	0	1	2	3	4

11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?	0	1	2	3	4
12. Loss of interest in activities that you used to enjoy?	0	1	2	3	4
13. Feeling distant or cut off from other people?	0	1	2	3	4
14. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?	0	1	2	3	4
15. Irritable behavior, angry outbursts, or acting aggressively?	0	1	2	3	4
16. Taking too many risks or doing things that could cause you harm?	0	1	2	3	4
17. Being “super alert” or watchful or on guard?	0	1	2	3	4
18. Feeling jumpy or easily startled?	0	1	2	3	4
19. Having difficulty concentrating?	0	1	2	3	4
20. Trouble falling or staying asleep?	0	1	2	3	4

Brief Experiential Avoidance Questionnaire (BEAQ)

Instructions: Please indicate the extent to which you agree or disagree with each of the following statements.

1 ----- 2 ----- 3 -----|----- 4 ----- 5 ----- 6
strongly moderately slightly slightly moderately strongly
disagree disagree disagree agree agree agree

- | | |
|---|---------------|
| 1. The key to a good life is never feeling any pain. | 1 2 3 4 5 6 |
| 2. I'm quick to leave any situation that makes me feel uneasy. | 1 2 3 4 5 6 |
| 3. When unpleasant memories come to me, I try to put them out of my mind. | 1 2 3 4 5 6 |
| 4. I feel disconnected from my emotions. | 1 2 3 4 5 6 |
| 5. I won't do something until I absolutely have to. | 1 2 3 4 5 6 |
| 6. Fear or anxiety won't stop me from doing something important. | 1 2 3 4 5 6 |
| 7. I would give up a lot not to feel bad. | 1 2 3 4 5 6 |
| 8. I rarely do something if there is a chance that it will upset me. | 1 2 3 4 5 6 |
| 9. It's hard for me to know what I'm feeling. | 1 2 3 4 5 6 |
| 10. I try to put off unpleasant tasks for as long as possible. | 1 2 3 4 5 6 |
| 11. I go out of my way to avoid uncomfortable situations. | 1 2 3 4 5 6 |
| 12. One of my big goals is to be free from painful emotions. | 1 2 3 4 5 6 |
| 13. I work hard to keep out upsetting feelings. | 1 2 3 4 5 6 |
| 14. If I have any doubts about doing something I just won't do it. | 1 2 3 4 5 6 |
| 15. Pain always leads to suffering. | 1 2 3 4 5 6 |

Note. To score, first reverse key Item 6 (i.e., subtract the value from 7), then sum all items.

Yearning in Situations of Loss (YSL) Scale—Bereaved

Instructions: Each blank refers to the loved one that you lost. Please indicate how often you feel the way described by selecting one of the responses.

Never	Sometimes	Always		
1	2	3	4	5

1. I am reminded of _____ by everyday objects, places and occurrences. 1 2 3 4 5
2. I find myself wishing that things could be the way they were when I was with _____. 1 2 3 4 5
3. I am distracted from things that are happening around me (e.g., conversations I am having) because I am thinking about _____. 1 2 3 4 5
4. I daydream about _____. 1 2 3 4 5
5. It's hard for me to be happy without _____. 1 2 3 4 5
6. I feel like things used to be so perfect before I lost _____. 1 2 3 4 5
7. I feel that in my ideal world, losing _____ would never have happened. 1 2 3 4 5
8. I imagine and choose things I would be willing to give up in exchange for having _____ back. 1 2 3 4 5
9. I feel separate from the world around me without _____. 1 2 3 4 5
10. The feeling of wanting _____ back is so strong it is indescribable. 1 2 3 4 5
11. I like to imagine what I would do if _____ were with me. 1 2 3 4 5
12. I am much more engaged in a conversation if it is about _____. 1 2 3 4 5
13. I feel that there just is no one else who can love me the way _____ did. 1 2 3 4 5
14. I wish I could do the things I used to do with _____. 1 2 3 4 5
15. I feel like it would be impossible to find another person that would make me feel the same way as _____ did. 1 2 3 4 5
16. I miss _____ as much or more than I have missed any other person. 1 2 3 4 5
17. Without _____, I feel alone. 1 2 3 4 5
18. I don't feel like going out as much without _____. 1 2 3 4 5
19. It's hard to imagine feeling as comfortable and happy as I was when I was with _____. 1 2 3 4 5
20. I feel like if _____ were here, I would know what to do about things. 1 2 3 4 5
21. I feel like I could be completely happy if I was with _____. 1 2 3 4 5

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