PRESCRIPTION MEDICATION USE IN BEREAVEMENT: AN ECOLOGICAL

MOMENTARY ASSESSMENT FEASIBILITY STUDY

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University of Missouri-Kansas City, 2023

ABSTRACT

Although many individuals experience a normal grieving process following the death of a loved one, some bereaved individuals will engage in prescription medication use to seek respites from their grief. More concerningly, the most commonly prescribed psychotropic medications given to the recently bereaved are often associated with higher rates of misuse (e.g., benzodiazepines) (Schmitz, 2016). Yet, extant literature has failed to find any significant impact of these medications on alleviating symptoms related to bereavement (Bui et al., 2012; Warner et al., 2001). The purpose of the present study was to examine the feasibility and acceptability of conducting real-time data collection on grief reactions and prescription medication use through an ecological momentary assessment (EMA) and to examine grief-related antecedents, such as separation/traumatic distress, driving prescription medication use, as well as craving intensity/frequency for medication. Twenty participants completed three brief assessments per day for 14 consecutive days. The EMA paradigm was deemed feasible within this population with participants completing 85.8% of the 42 assessments. Similarly, participants reported overall positive experiences completing the study with reports they would participate in similar future studies. Prescription medication use was neither associated with separation or traumatic distress. However, significant associations were found between separation and traumatic distress for craving intensity,

while traumatic distress appeared to be the only driving factor for craving frequency. These findings suggest that grief reactions may cue cravings for prescription drugs among recently bereaved persons who seek these drugs during acute bereavement. Implications for research and practice are discussed.

APPROVAL PAGE

The faculty listed below, appointed by the School of Education, Social Work, and

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bereavement: an ecological momentary assessment feasibility study," presented by Aisling

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ACKNOWLEDGMENTS

DEDICATION

I dedicate this body of work to my mother, Mary Beth Henschel. You taught me to live with tenacity, kindness, and humility. Most importantly, from a young age you instilled in me that I can achieve anything I set my mind to. For that, I am forever thankful for you. Finally, to Clodagh, my beautiful blue Pitbull, who stayed by side every second during the writing process.

CHAPTER 1

REVIEW OF THE LITERATURE

Normative Bereavement And Prevalence Rates

Bereavement and subsequent grief reactions have been a salient experience in the

United States with the COVID-19 pandemic causing 377,883 deaths during the year 2020

alone (Ahmad et al., 2021). Overall, during 2020, approximately 3,358,814 deaths occurred

in the United States with heart disease, cancer, and COVID-19 being the leading causes

respectively (Ahmad et al., 2021). Extant literature has posited that, for many individuals,

grief reactions will be most intense immediately following the death of a loved one with the

intensity of their grief decreasing over time (Jordan & Litz, 2014). Normative grief may

include the bereaved individual potentially experiencing disbelief or shock around the

passing of the loved one, becoming confused about their identity or social role in life,

disengaging from regular activities, and experiencing symptoms of anxiety, depression,

anger, and dysphoria (Shear, 2015). However, Bonanno et al. (2002) found that in a sample

of 185 conjugally bereaved older (over the age of 60) individuals, grief symptoms were

largely resolved by 18 months post-loss. Similarly, Yopp et al. (2019) administered online

surveys every six months for a two-year longitudinal study in a sample of 252 spousally

bereaved husbands with dependent age children in the household. They found that grief

symptoms, measured using the Texas Inventory of Grief (TRIG; Faschingbauer et al., 1977),

were highest at baseline and continued to decline at 12, 18, and 24 month time points (Yopp

et al., 2019). Prigerson and Maciejewski (2008) also found that shock and disbelief are some

of the first responses to grief following the death of a loved one, but throughout time, grief

reactions will change to acceptance of the death and loss in individuals who do not experience maladaptive grief reactions.

Nomenclature

Prolonged Grief Disorder

Prolonged grief disorder (PGD) has recently become recognized as a formal diagnosis in the *Diagnostic and Statistical Manual of Mental Disorders – Text Reviewed* (5th ed., text rev.; *DSM-5-TR*; American Psychiatric Association, 2022). Diagnostic criteria include: (A) the bereaved experiencing the death of a person who was close to them at least 12 months ago and (B) the bereaved experienced intense yearning/longing for the deceased and/or experiences a preoccupation with thoughts or memories of the deceased nearly every day or more in the past month. Lastly, (C) three or more of the following eight symptoms must be experienced to a clinically significant degree since the death, nearly every day or more, in the past month: Identity disruption, marked sense of disbelief about the death, avoidance of reminders that the person is dead, intense emotional pain, difficulty with reintegration into life after the death, emotional numbness, feeling that life is meaningless as a result of the death, and intense loneliness (Prigerson et al., 2021). Conceptually, PGD reflects a persistent and debilitating form of grief that does not diminish over time.

Complicated Grief

Prior to the formal inclusion of PGD in the *DSM-5-TR*, intense and prolonged grief reactions were also referred to as complicated grief (CG; Shear et al., 2011) in the psychopathology literature. Symptoms of CG are similar to PGD and include continued disbelief, bitterness or feeling stunned over the loss, difficulty accepting the loss, confusion over one's identity since the loss, emotional numbing, severe yearning for the deceased, an

inability to trust others, or feeling that life is meaningless since the loss (Prigerson & Maciejewski, 2008). Bereaved individuals experiencing CG reactions may also experience avoidance of situations that may remind them of the loss and engage in proximity seeking behaviors to continuously remind them of the deceased such as smelling or touching the deceased's belongings (Shear, 2015). One of the distinct differences between the new PGD criteria for *DSM-5-TR* and CG, as conceptualizations for pathological grief, is the time of onset for a formal diagnosis. According to the *DSM-5-TR* diagnosis, PGD specifies at least one year passing since the death. The timeline for PGD does differ in the current *International Classification* of *Diseases 11th* Revision (*ICD-11)* diagnostic guidelines which specifies a lapse of six months post-loss (World Health Organization, 2019). Prigerson and colleagues (2021) have advocated to extend the timeline to at least one-year post-loss to address concern from the general public's worry about pathologizing normative grieving processes through formally diagnosing PGD "too soon." On the other hand, CG continues to specify a time lapse of six months passing since the death as evidence has shown that the severity of grief symptoms at six-months is a significant indicator of the onset of grief-related pathology (Boelen et al., 2020).

Prevalence Of Complicated Grief

Grief is generally considered complicated if these reactions remain at a high level of intensity – impeding on daily functioning – for longer than would be expected within social norms of the respective culture (Shear, 2015). However, a multitude of studies have found that the high intensity of acute grief reactions subsides at around six months post-loss for most bereaved individuals (DeVaul et al., 1979; DeVaul & Zisook, 1976; Dopson & Harper, 1983; Shear et al., 2011; Zisook et al., 1985). Although most individuals who experience a

loss will reach a state of integrating, or accepting the loss in their lives, a significant portion

will experience CG reactions beyond the time when most reactions naturally resolve, with

rates ranging between 11% to 15% in community-based samples of bereaved individuals

(Shear et al., 2011). Prevalence of CG appears to rise drastically depending on the type of

loss. For instance, 31% of Bosnian refugees (Momartin et al., 2004) and 54.5% of homicide

survivors (McDevitt-Murphy et al., 2012) screened positive for CG. Moreover, Sveen et al.

(2018) examined the chronicity of prolonged/complicated grief symptoms by conducting a

six-year longitudinal study in a sample of 170 Swedish tourists who survived the 2004 Indian

Ocean tsunami and lost a loved one in the disaster. The study found that 11% of the sample

endorsing symptoms of prolonged grief exhibited unrelenting symptoms six years after the

event, suggesting that many individuals who experience prolonged and complicated grief

reactions may never independently recover from grief. Theorists have suggested that the

severity of two types of grief reactions, known as separation distress and traumatic distress,

act as distinct mechanisms underlying pathological grief reactions (Holland & Neimeyer,

2011).

Separation Distress

Separation distress has been characterized as one of the most salient and distinct

features of CG and involves intense yearning or longing for the deceased, distressing pangs

of loneliness, and/or a preoccupation with reminders of the deceased (Holland & Neimeyer,

2011). These experiences are derived from Bowlby's (1982) well-known attachment theory

in which humans preserve an innate motivation to seek proximity to significant figures

during trepidatious times to alleviate distress and protect themselves against perceived

threats, otherwise known as the attachment behavioral system. When an attachment figure is

lost, a common initial response is for the surviving loved one to experience separation

distress, or difficulty imagining regaining a sense of support, protection, security, and love

without the figure's physical presence (Bowlby, 1982; Mikulincer & Shaver, 2008). Based

on Bowlby's (1982) theory of attachment and an extensive review of the literature,

Mikulincer and Shaver (2008) modified the three phases of separation infants and young

children experience when separated from their primary caregivers and adapted them to

describe bereaved individuals' experiences. These phases were termed the protest phase, the

despair phase, and the detachment phase, and were deemed sequential in order. However,

Mikulincer and Shaver (2008) emphasized that these phases are not sequential in order in the

face of bereavement but, rather, can oscillate between one another, therefore they removed

the word "phase" and replaced it with "stages". The protest stage, according to Mikulincer

and Shaver (2008), involves a preoccupation with missing the deceased, persistent distress,

and anhedonia. Despair initiates once the bereaved fully realizes that the deceased will not

return and may experience sleeping or eating disturbances, intense melancholy and anguish,

pining for the deceased, social withdrawal, and feelings of loneliness. The last stage

involves, what Mikulincer and Shaver (2008) separation distress reorganization. Bowlby

(1980) believed that, for the last stage instead of detaching from the deceased, bereaved

adults can rearrange, or reorganize, their sense of self and carry the sense of comfort they

received from the deceased in a different capacity.

More recent theories of CG have incorporated a cognitive-behavioral

conceptualization of separation distress in sustaining maladaptive grief symptoms. Boelen et

al. (2006) posited three core processes aid in the development and chronicity of CG,

particularly in maintaining separation distress and traumatic distress. The first process

involves the failure to incorporate the loss into autobiographical knowledge, or in other words, failure to incorporate the loss as "irreversible or real" in order to habituate to life without the physical presence of the deceased. Incorporating the loss into autobiographical knowledge involves connecting memories, thoughts, and related feelings around the relationship with the deceased with the knowledge that the separation is final and integrating this meaning of the relationship with conceptualizations about the bereaved one's past, present, and future self that is connected with the relationship to the deceased (Boelen et al., 2006; Conway & Pleydell-Pearce, 2000). The second process involves alterations in beliefs about the self and the world. Although these processes are not sequential but rather impact one another, negative global beliefs have been posited to heavily impact traumatic distress reactions and will be discussed in the following section. Engagement in avoidance behaviors is the third process reflected in the cognitive behavioral conceptualization of CG and has been shown to play a key role in limiting readjustment post-loss. Specifically, depressive avoidance, or engaging in behavioral patterns that limit social, occupational, and recreational activities, can prolong separation distress by interfering with the incorporation of loss into autobiographical knowledge and prevent the bereaved in gaining new experiences without the deceased (Boelen et al., 2003; Boelen et al., 2006; Horowitz et al., 1993).

Traumatic Distress

Traumatic distress symptoms refer to reactions in which bereaved individuals are traumatized by the death of their loved one. Symptoms include avoidance of reminders or acknowledging the loss, emotional numbing, feelings of shock or being stunned by the loss, feelings of emptiness and lack of purposefulness about the future, difficulties imagining a rewarding life without the deceased, feeling that a part of themselves has also died, feeling

angry, and experiencing a shattered worldview (Boelen et al., 2006). Where separation distress primarily encompasses longing for the deceased and moving forward without the physical presence of the deceased, traumatic distress focuses on the impact the death has on the bereaved individual's emotional response and subsequent cognitions or beliefs. Negative global beliefs, one of the core processes of the cognitive behavioral conceptualization of CG, significantly impact traumatic distress symptoms and stem from cognitive theories of posttraumatic stress disorder such as Janoff-Bulman's theory of shattered assumptions (Janoff-Bulman, 1992). The theory posits that individuals have pre-existing beliefs about the world that are violated by the occurrence of an extreme event, such as a loss, and lead to shattered assumptions of safety, competency, and expectations of the future (Janoff-Bulman, 1992). For instance, the death of child may lead to disruptions in one's meaning of life; or solidify the existing belief that the world is unjust and unsafe (Foa & Rothbaum, 1998). Neimeyer et al. (2002) posit similar experiences post-loss as the bereaved makes efforts to accommodate these disruptions in world view assumptions and renegotiate a life narrative. These global negative beliefs may express themselves as thoughts such as, "life is meaningless," or "I am worthless," or "the future is meaningless," and, according to the cognitive behavioral theory, this leads grievers to anxiously avoid the reality of the loss (Boelen et al., 2006). Additionally, anxiously avoidant grievers may feel that confronting feelings around the reality of the loss will be intolerable, causing grievers to actively avoid reminders of the loss such as people, places, or objects (Boelen et al., 2006; Horowitz et al., 1993). It is important to note that anxious avoidance is a normative process in acute grief where the notion of accepting the loved one is truly gone can feel too painful to accept. However, if this avoidance persists, the bereaved may link these thoughts, feelings, or

memories to feelings of insecurity, or danger, and will continue to elicit high distress severity. Avoidance has also been shown to contribute to traumatic distress symptoms, such as emotional numbing or feeling detached from others, in complicated grief (Boelen et al., 2003; Prigerson et al., 2009).

Emotion Regulation In Grief

The experience of grief triggering intense emotional pain has been well established in the literature, particularly when the grieving process becomes complicated and prolonged. Individuals engage in some sort of emotion regulation process in order to manage these emotions. Emotion regulation involves the attempt to influence emotions whether they are positive or negative in nature, whether they are one's own emotions or emotions of another, can vary depending on the intensity or duration of the emotions, and this regulation is not always consciously activated (Naragon-Gainey et al., 2017). Several types of emotion regulation processes have been examined in grief literature that impact CG symptoms. Eisma and Stroebe (2021) conducted a systematic review on emotion regulatory strategies in CG using the terms "prolonged grief," "complicated grief," "persistent complex bereavement-related disorder," "traumatic grief," or "pathological grief." Results yielded 64 viable articles based off 48 independent data sets consisting of 7,715 bereaved participants. These studies examined emotional regulation schemes that fell into strategies categorized by Naragon-Gainey et al. (2017). These categorizations included experiential avoidance ($n = 23$; 36%), behavioral avoidance ($n = 25$; 39%), rumination ($n = 13$; 20%), worry ($n = 3$; 5%), cognitive reappraisal ($n = 3$; 5%), problem solving ($n = 2$; 3%), mindfulness ($n = 1$; 2%), and expressive suppression ($n = 1$; 2%). Out of these categories, experiential avoidance was

found to have the strongest association with CG symptomatology across studies and exhibited the highest impact on the chronicity of symptoms.

Experiential Avoidance

Specifically, experiential avoidance is conceptualized as a self-regulatory process that involves an unwillingness to sustain aversive internal experiences such as emotions, thoughts, memories, or bodily sensations, and involves engagement in effortful avoidance of aversive experiences (Chawla & Ostafin, 2007; Hayes et al., 1996). This avoidance is not always considered maladaptive, and, according to Shear (2010), can facilitate the process of accepting the loss by permitting respites in emotional pain, and allow readjustment to life without the loved one. As processing continues, the need for avoidance should diminish. Unlike "adaptive" experiential avoidance, which is considered fluid and vacillating, "maladaptive" experiential avoidance is constant, unchanging, and without reprieve from continuous avoidance of aversive states (Shear, 2010). This blocks bereaved individuals from cognitively engaging in processes that allow bereaved individuals to learn how to navigate their lives without their loved one. More importantly, existing research has emphasized the saliency of maladaptive experiential avoidance in the disruption of normative grief processes and the development of CG symptoms. For example, Bonanno et al. (2005) found that loss-oriented avoidance (avoidance of thinking or talking about the deceased, and avoidance of expressing feelings about the deceased) endorsed at four months post-loss were significantly related to avoidance reported at 18 months post-loss; signifying the persistent state of avoidance engagement. Additionally, Shear et al. (2007) found loss-oriented avoidance to be significantly corelated with impairment from grief and CG. However, research has shown that experiential avoidance does not have to be loss-oriented in nature to cause impairment in

grief processes. General experiential avoidance is significantly correlated with CG ($r = 0.63$; Boelen & Reijntjes, 2008). More recently, Nam (2016) found that experiential avoidance fully mediated the relationship between bereavement by suicide and CG in 859 conjugally bereaved older adults. Furthermore, Williams et al. (2019) concluded that experiential avoidance moderated the association between motivational sensitivity, particularly behavioral activation – commonly known for the pursuit of reward – and prolonged grief symptoms in 326 undergraduate participants who had experienced a sudden and unexpected loss. These findings ultimately support the hypothesis that bereaved individuals higher in experiential avoidance will continue engaging in behaviors to reduce negative affect, impacting CG symptom severity.

Experiential Avoidance and Health Risk Behaviors

Grief reactions predict not only negative mental health outcomes, but also physical health outcomes including high blood pressure, heart problems, and changes in eating and smoking habits (Bonanno et al., 2007; Latham & Prigerson, 2004). Kingston et al. (2010) found that experiential avoidance mediated the relationship between adverse events and problematic behaviors (e.g., binge eating, self-harm, and substance misuse) in a sample of 290 treatment-seeking participants. In other words, participants who experienced adverse events engage in problematic behaviors as a means to avoid aversive internal experiences. From these findings, experiential avoidance plays a vital role in either facilitating the adaptation to life post-loss or potentially complicating the bereavement process by increasing the likelihood that grievers will engage in potentially problematic behaviors that can inhibit resolution of grief reactions, ultimately aiding in the onset of CG symptoms.

It is important to examine problematic health risk behaviors that may create larger health concerns for acutely bereaved individuals. One such set of behaviors that has been grossly understudied in bereaved populations is substance misuse.

Substance Use In Grief

Parisi et al. (2019) conducted a systematic empirical literature review of quantitative studies examining the relationship between CG and substance misuse. Out of 11 databases searched, including Pubmed, PsycInfo, and Web of Science, 12 peer-reviewed journal articles were published between 1997 and 2017, shedding light on just how understudied substance misuse is in the grief literature.

Comorbidity of Substance Use and Complicated Grief

Masferrer et al. (2017) conducted a case control design examining 196 patients receiving treatment from the Public Addiction Treatment Centre in Spain and matched patients with a non-clinical community sample. Inclusion criteria included patients who had a diagnosis of a substance use disorder, according to *DSM-IV-TR* criteria, and had lost a significant person in their life. Findings revealed that 34.2% of SUD patients screened positive for CG symptoms compared to 5% in the community sample (Masferrer et al., 2017). Using the same sample, Masferrer et al. (2015) also found that 83.2% of participants reported increased drug consumption after suffering the loss of a significant person and 12.3% of patients reported relapsing after the loss. However, 54% of patients who increased their drug consumption following the loss did not perceive this increase in use as a coping mechanism associated with the loss. In a sample of 659 bereaved college students, Eddinger et al. (2019) found higher rates of alcohol consumption among bereaved individuals who had experienced a sudden, unexpected loss, with 70.2% of bereaved participants reporting

consumption versus 56.7% of non-bereaved. Similarly, increases of alcohol consumption as a coping mechanism for aversive affect to the loss has been seen for up to two years post-loss (Brent et al., 2009; Creighton et al., 2016; Pfefferbaum et al., 2002; Pilling et al., 2012). Individuals who experience loss may turn to substances to cope with this loss. However, these coping tactics may put the bereaved individual at higher risk for chronic misuse of the substance. For instance, Gayman et al. (2016) found that young adults were twice as likely to develop a substance use disorder if they experienced multiple deaths in a short period of time. Bereaved individuals high in experiential avoidance may turn to substances as a mechanism to avoid distressing grief reactions, but what explains the development of substance use disorders post-loss? The self-medication hypothesis, in which drugs become a quick-action way to alleviate distressful and intolerable emotional states and create feelings of emotional stability (Khantzian, 1997, 2003), may best explain this onset.

Self-Medication Hypothesis

The self-medication hypothesis (SMH) postulates that the use of substances acts as an immediate alleviation of distressful affects and allows the user to self-soothe from aversive psychological states (Khantzian, 1997, 2003; Suh et al., 2008). Continued positive reinforcement through the administration of the drug to alleviate dysphoric emotions can, conversely, create an overall higher intolerance for distress, ultimately leading to prolonged drug abuse. Furthermore, the SMH has accounted for the etiology of substance misuse through examining personality types and drug of choice. For example, Suh et al. (2008) used the *Minnesota Multiphasic Personality Inventory-2* (MMPI-2; Butcher, 1989) to examine participants' emotional states and drug of choice. They hypothesized that (1) participants who preferred alcohol would endorse higher levels of repression and emotional inhibition,

(2) cocaine preference would be associated with higher levels of depressive affect or the need for elation, and (3) participants who preferred heroin would endorse higher levels of anger or trauma history. Findings overall supported each hypothesis where (1) participants who suppressed emotions belonged to the alcohol group, (2) participants who endorsed a higher level of restlessness and a desire for an elated psychological state significantly predicted cocaine preference, and (3) heroin users endorsed higher levels of anger or negativity (Suh et al., 2008). Furthermore, Chutuape and de Wit (1995) conducted a double-blind placebo-controlled experiment with anxious vs. non-anxious controls and placebo vs. diazepam (a commonly used anxiolytic medication) or alcohol. Participants were allowed to choose dose amount (up to seven) of alcohol or diazepam over a three-hour period in a laboratory-based setting. Highly anxious participants were more likely to choose diazepam over alcohol and chose to partake in significantly more doses than the control counterparts, supporting the SMH.

Given the intense pain often associated with grief, existing literature has found that bereaved individuals seek alcohol or other substances to help them cope with intense negative affect. Indeed, this may reflect the fact that few studies have examined the efficacy of pharmacological interventions (or behavioral interventions, for that matter) to help manage bereavement-related emotional distress. In fact, the existing studies examining the effects of prescription medication, such as benzodiazepines and antidepressants, have failed to find significant reductions in reported symptoms of bereavement and, conversely, may prolong the grief process through heightening experiential avoidance (Bui et al., 2012; Warner et al., 2001).

Prescription Medication Use

According to the National Institute on Drug Abuse (NIDA, 2020), prescription medication misuse involves the act of using the medication inappropriately, such as taking more than prescribed or taking the medication without a prescription. NIDA additionally reports commonly misused prescription medication classes include pain relievers, including opioids (e.g., oxycodone); central nervous system depressants, including benzodiazepines (e.g., diazepam) and sleep aids (e.g., zolpidem); and barbiturates (e.g., mephobarbital; NIDA, 2020), and accounts for an alarming number of overdose fatalities (Adewumi et al., 2018). In 2019 alone, the National Surveys on Drug Use and Health (NSDUH) found that 3.7% of people aged 12 years and older (or approximately 9.7 million people) reported misusing prescription opioid medication (Substance Abuse and Mental Health Services Administration [SAMHSA], 2019). More so, Blanco et al. (2018), using NSDUH data between 2015-2016, reported that around 30.5 million United States (12.5%) residents used benzodiazepines. Of this 12.5%, around 17% reported misusing them at least once, and around 0.2% of adults met criteria for a benzodiazepine use disorder. Benzodiazepine use was also associated with emergency room visits, comorbidity with other psychiatric disorders, and suicidal ideation (Blanco et al., 2018).

Benzodiazepine prescription medication typically functions as a sedative to relieve stress, anxiety, and assist in better sleep quality. Benzodiazepine classes include three types of release mechanisms: long, intermediate, and short-acting. Commonly known long-acting benzodiazepines include diazepam (generic name) or Valium and Ducene (name brand). Intermediate-acting benzodiazepines include nitrazepam or Mogadon and Alodorm. Finally, there are considerably more short-acting benzodiazepines on the market with oxazepam or

Alepam, Murelax, Serepax, and temazepam or Euhypnos and Normison, and alprazolam, or more commonly known as Xanax, Kalma, or Alprax (Alcohol and Drug Foundation, 2021). Additionally, short-acting benzodiazepines are associated with long-term addiction and stronger withdrawal effects (Addiction, 2018). The most commonly prescribed psychotropic medications given to recently bereaved individuals are benzodiazepines (e.g., anxiolytics, sedatives, and hypnotics) as well as Selective Serotonin Reuptake Inhibitors (SSRIs; Schmitz, 2016). More concerningly, nearly 18% of bereaved individuals are prescribed psychotropic medications within one-year post-loss and continue use long-term (Lacasse & Cacciatore, 2014; Shah et al., 2013). Not reflected in these numbers are the many individuals who may also take prescription medications without a prescription from a doctor to help manage bereavement-related distress as evidence indicates individuals who seek prescription medications may also turn to peers or family members to obtain the drug (McCabe & Boyd, 2005).

Prescription Medication Use Following Bereavement

Shah et al. (2013) followed 21,122 recently bereaved (past year) people, aged 60 and over with no psychotropic drug use in the past year, for one year using the United Kingdom Primary Care database. A matched control group design was utilized based on age, sex, and primary care practice. They found that 9.5% received a new psychotropic (benzodiazepine or SSRI) prescription within two months of bereavement and increased to 17.9% at one-year post bereavement. Bereaved individuals were 12.4% more likely to receive a new prescription within the year compared to the non-bereaved controls. Additionally, bereaved individuals were more likely to receive a prescription for benzodiazepines than SSRIs, and 13.3% who started a benzodiazepine within two months post-bereavement continued to refill

their prescription at one year. Prescription medication seeking following loss was also found in an unpublished preliminary data collection study, conducted in this author's laboratory, exploring coping mechanisms in the months following acute bereavement. Using Amazon's Mechanical Turk (MTurk), coping strategies after death were explored, including prescription medication use. Of the 204 participants who completed the study, 38 (18.6%) participants reported seeking prescription medication following the death of a loved one and, of those 38, 21 (55.3%) participants reported using prescription medication more than prescribed. Participants reporting more grief symptoms were more likely to seek prescription medications from a provider than those low in grief symptoms.

Although research has indicated benzodiazepines tend to be the first line of defense in ameliorating acute grief, research has also failed to find any significant effects in reducing these reactions. Warner et al. (2001) conducted a randomized, double-blind, placebo-controlled study to evaluate the efficaciousness of benzodiazepines following recent bereavement (within one week). Thirty participants were randomized to receive either 2mg of diazepam three times/day for six weeks or a placebo. Study results failed to find any evidence that diazepam yielded any effect on the course of bereavement, nor did participants find diazepam helpful in reducing negative affect or increase coping compared to placebo. Some research has shown that antidepressants (e.g., SSRIs) have evidenced positive trends in coping with grief-specific reactions, as well as depression. Bui et al. (2012) reviewed existing trials examining SSRI efficacy post-bereavement. Overall, findings were mixed with some trials suggesting tricyclic antidepressants reduce depression post-loss but not grief-specific symptoms, while other trials have shown promising results in SSRIs reducing grief-specific symptoms (see Bui et al., 2012). These studies highlight a general absence of expert

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consensus prescribing guidelines on bereavement care for health care providers in the United

States, and such prescribing patterns pose a serious problem with increasing potential long-

term misuse. Most notably, the extent to which processes described in the SMH underlie

decisions to initiate and use prescription medications, particularly those with high misuse

potential intended to be taken on an as-needed basis in the context of early bereavement

(short-acting benzodiazepines), remains unclear.

In general, research examining mental health antecedents, or motives, to self-

administer prescription medication without a prescription or beyond prescribed dosage has

largely found that anxiety plays a major role in the decision to use (Barth et al., 2013;

McHugh et al., 2020). In a sample of 86 non-treatment seeking participants diagnosed with

prescription opioid use disorder, Barth et al. (2013) used the Non-Medical Use Questionnaire

(McCabe et al., 2007) and the Brief Pain Inventory (Cleeland & Ryan, 1994) to examine

motives to use. They found that initial motivations to use prescription opioids was primarily

to relieve pain. However, subsequent non-medical use motivations included to experience a

high, increase energy, decrease anxiety, and improve quality of sleep. Similar findings were

seen in a sample of 258 treatment-seeking adults diagnosed with alcohol use disorder.

McHugh et al., (2020) found that 30% of the sample also reported a history of

benzodiazepine misuse in the past year, a concerning rate with the increased risk of overdose

when alcohol and benzodiazepines are co-ingested (Gudin et al., 2013). Using the Drug Use

Motives Questionnaire (Cooper et al., 1992), participants reported anxiety and coping (e.g.,

to relax or to forget worries) were the most common antecedents to misusing

benzodiazepines. To this researcher's knowledge, no research has been conducted on the

antecedents, such as separation and traumatic distress, impacting the decision to self-

administer prescription medications, particularly those with high misuse potential, in bereavement.

Design Limitations In Research On Drug And Alcohol Misuse

Although these studies illuminate mechanisms (e.g., anxiety, coping) driving prescription medication misuse, several design limitations limit the extent to which we can draw conclusions. First and foremost, the majority of data collection methods in psychological science comprise of retrospective recall and provide major limitations in data interpretation as cognitive coping is likely to be underreported, while behavioral coping may be generally overreported retrospectively due to ease of recall (Stone et al., 1998). Retrospective bias theorizes that memory of emotions experienced during an event may reflect the current mood an individual is experiencing, rather than the true emotions experienced at the time of an event (Colombo et al., 2020). For instance, when Masferrer and colleagues (2015) asked participants who began using substances before a loved one's death , and participants who began using substances after a loved one's death, whether they attributed their increased drug consumption to the loss of a significant person, 83.2% of the entire sample (both began using before and after) reported yes while 54% of the participants who began using substances after a loved one's death reported no (33.6% reported no for the participants who used before the bereavement). Although this study sheds light on the direct association between grief and substance use, many confounding factors may decrease the validity of these findings. One major factor is that the research methodology relied heavily on retrospective recall while participants were receiving treatment for an existing substance use disorder. Often times, while in substance use treatment, patients reflect on past

experiences and search for attributes as to why they experienced functional impairments due to substances. This may cause biases in memory and lower the reliability of findings.

Several studies have found that when comparing retrospective recall to momentary assessments using ecological momentary assessment (EMA) methodology, coping mechanisms (e.g., emotion regulation, avoidance) and subsequent emotionality (e.g., positive and negative affect) are grossly impacted by the current mood a participant is experiencing at the time of recall (Colombo et al., 2020; Kardum & Daskijević, 2001; Smith et al., 1999). In other words, if a participant is under duress with life stressors, then they will recall an event or emotion more negatively than what they recorded on an EMA. Conversely, if a participant is experiencing positive affect, then they will recall an event more positively than originally reported. However, growing research has found that EMA methodology can greatly reduce retrospective recall bias.

Ecological Momentary Assessment

EMA is a methodology that collects real-time data in a naturalistic setting, rather than the retrospective recall many cross-sectional data designs provide (Shiffman et al., 2008), which may prove a useful method for understanding whether emotional pain in the context of bereavement cues decisions to administer prescription drugs of abuse. Essentially, EMA paradigms allow quantification of small-scale changes that would otherwise be lost in retrospective recall. Methodology involves prompting participants, via a technology modality such as a tablet or smartphone, several times per day to complete real-time surveys in an allotted period of time following the prompt. Shiffman et al. (2008) describes several strengths EMA paradigms provide. Firstly, data is collected in a real-world environment in which the participants can go about their lives and, thus, strengthens generalizability.

Secondly, assessments measure participants' current state, instead of asking participants to recall or summarize feelings, and reduces memory bias. Finally, measures are collected over time and provide a more nuanced picture of variations in experiences and behavior. EMA studies have shown high feasibility in a variety of clinical populations including posttraumatic stress disorder, anxiety and mood disorders, as well as substance use disorders (Soyster et al., 2019). More specifically, implementation of EMA paradigms has shown to be successful in prescription medication users (Garland et al., 2019; Huhn et al., 2016; Kowalczyk et al., 2015; Papp et al., 2020).

Papp et al. (2020) found that EMA paradigms are highly feasible in a population misusing prescription medications classified by the NSDUH. Prescription misuse was operationally defined as using medications without a prescription; using medication in greater amounts, more often, or longer than prescribed; or using medication any other way than the doctor's directions (Papp et al., 2020). To be included in the study, college students from a Midwestern university must have misused pain relievers, tranquilizers, stimulants, or sedatives in the past three months. After completing an initial laboratory-based baseline session, participants completed four prompts per day for a 28-day period on an iPod touch provided by the research team. Participants could also self-initiate a report at any time if they intended to misuse a medication, and question prompts were based on craving intensity/frequency and mood. Acceptability was measured following the EMA period in a second laboratory session. Participants were asked to rate on a 0–3 scale how user friendly the iPod touch device was, how the reports reflected their typical daily life, how helpful the research team was, and whether they would recommend the research study to friends (rated dichotomously with 0 = No; 1 = Yes). Overall, participants were highly engaged in the study

and reported positively on all acceptability questions with 99.7% of participants reporting they would recommend the study to a friend. Most importantly, feasibility was measured with overall compliance to the daily questionnaires with participants returning an average of 74.5 reports (*SD* = 23.82; range 10-122). Overall, Papp et al. (2020) found that EMA paradigms are highly feasible in populations actively misusing prescription medications. Although Huhn et al. (2016) did not assess feasibility in an EMA study examining craving and affect in an opioid dependent sample seeking treatment at a residential drug and alcohol treatment facility, the authors did have success in implementing surveys assessing positive/negative affect and craving four times per day for 12 consecutive days. In summary, EMA paradigms are increasingly showing strength in the literature to accurately identify nuanced antecedents to prescription medication use or misuse that retrospective recall paradigms often miss.

The Current Study

To our knowledge, the present study is the first EMA not only conducted in a bereaved sample, but a bereaved sample actively taking medications – often associated with high misuse rates – for grief-related symptoms. Conducting an EMA allowed real-time assessment of grief-related antecedents, specifically separation and traumatic distress symptoms, prior to medication use and measurement of patterns of use among a bereaved sample. This study provided critical information about the feasibility and acceptability of conducting a larger EMA in a highly distressed bereaved population. Additionally, the present study provided information on emotional antecedents driving medication use to provide evidence-based information to prescribers for grief-reaction management. The

primary objective of this study was to determine the feasibility and acceptability of using EMA to explore associations between grief symptoms and prescription drug use.

Specific Aims

Aim One

Examine the feasibility of conducting a two-week ecological momentary assessment with three time-points per day in a bereaved population using prescription medications through measuring attrition rates and reasons driving dropout.

Aim Two

Examine the acceptability of conducting an ecological momentary assessment in a bereaved population using prescription medications associated with high propensity of abuse/misuse.

Aim Three

Examine the magnitude of effect amongst associated variables to inform appropriate sample size to power future studies.

Aim Four

Explore grief-related antecedents driving prescription medication use such as craving, separation distress and traumatic distress.

Specific Hypotheses

Hypothesis One

Feasibility would be demonstrated by successful recruitment (minimum of 3 subjects per month) and retention (85% of subjects completing study) of research participants. Feasibility would also be demonstrated by a 70% adherence rate (minimum of 29

assessments completed out of the 42 assessments in the two weeks). Feasibility and retention

rates were derived from Papp et al. (2020).

Hypothesis Two

Acceptability would be demonstrated by self-reported perceived burden specifically

regarding assessment length and delivery format. Acceptability would also be demonstrated

by self-reported relevance of measures in the assessment battery and ease of assessment

methodology (i.e., ecological momentary assessment). The acceptability questionnaire was

based off Papp et al. (2020).

Hypothesis Three

Medium to large effect sizes were excepted between key grief-related symptoms (e.g.,

separation/traumatic distress) on substance use variables (e.g., amount of medication used,

craving).

Hypothesis Four

The assessment battery would be sensitive to change from the baseline assessment

through the EMA assessment.

CHAPTER 2

RESEARCH METHODS

Participants

The present study's target sample size was originally set for a total of 30 participants. However, after recurring technological difficulties with our data collection software resulted in subsequent delays in enrollment, the researchers decided to cease enrollment after reaching 20 completers. Please refer to the limitations section for more information. Participants included 20 recently bereaved individuals living in the United States who had lost loved ones in the past year and reported currently taking prescription medications with high abuse potential. Participants were primarily recruited from Amazon Mechanical Turk (MTurk; $n = 19$), with one participant recruited from Crossroads Hospice. The present sample was primarily female ($n = 12$, 60%) with ages ranging from 23 to 58 years ($M = 36.35$, $SD = 9.05$). Please see Table 1 for further demographics. The mean time since death loss was 252.58 days ($SD = 162.65$). One participant identified the death as over one year. Most participants identified the cause of their loved one's death as sudden, unexpected illness (35%, $n = 7$), followed by natural disaster (15%, $n = 3$), alcohol or drug overdose (15%, $n = 3$), motor vehicle crash (10%, $n = 2$), suicide (10%, $n = 2$), murder/homicide (5%, $n = 1$), chronic illness (5%, $n = 1$), and miscarriage (5%, $n = 1$). Participants' relationships to the deceased varied with 40% ($n = 8$) identifying the deceased as a close friend, 15% ($n = 3$) as a cousin, 15% ($n = 3$) as a parent, 10% ($n = 2$) as a sibling, 10% ($n = 2$) as a grandparent, 5% ($n = 1$) as a child, and 5% ($n = 1$) as a sister-in-law. As for prescription medications endorsed during the initial screening, 65% ($n = 13$) endorsed using benzodiazepines with 40% ($n = 8$) reporting a prescription. Five participants endorsed using benzodiazepines before the death.

The mean benzodiazepine dosage prior to the death reported was 2.67mg (SD = 3.71), while

the mean dosage following the death increased to 5.07 mg (SD = 4.46). The average amount

of time for participants to begin using benzodiazepines after the death was 31 days (SD =

17.55). Sleep medication use was endorsed by 15% (n = 3) of participants with 5% (n = 1) of

participants reporting a prescription. No participants reported using sleep medication prior to

the death. The mean dosage following the death was 5.33 mg (SD = 4.51). The average

amount of time for participants to begin using sleep medications after the death was 10.67

days (SD = 7.51). Prescription opioids were endorsed by 15% (n = 3) with 5% (n = 1) of

participants reporting a prescription. The mean opioid dosage prior to the death reported was

7.50 mg (SD = 3.53), while the mean dosage following the death increased to 85 mg (SD =

134.26). Out of the three participants were endorsed opioid use, two participants reported use

before the death, and the participant who began use after their loved one's death did not

report the number of days following the death the use started. Per Prigerson et al. (1995), an

ICG cut off score of 25 is indicative of pathological grief. At baseline, participants reported

an average score of 28.21 (SD = 8.89) with scores ranging from 14.73 to 43.55. Thirteen

(65%) participants scored over the cut off range, indicating pathological grief symptoms.

Participants were included in the study if they met the following criteria:1) aged 18 and

above, 2) lost a loved one in the past year, 3) were taking prescription medications with high

misuse potential (i.e., benzodiazepines, sleep aids, etc.), 4) read and spoke English, and 5)

had a working smartphone. Participants were excluded if they endorsed active, unmedicated,

psychosis, or were actively suicidal. The timeframe since loss (up to one year) was derived

from Shah et al.'s (2013) finding that bereaved individuals are most likely to receive new

psychotropic medication prescriptions two months post-loss with steadily increasing rates

through the first year post-loss. Broadening the timeframe to around one year allowed similar

data collection in assessing sustained medication use. However, one participant reported the

death date to be over one year. A protocol deviation was submitted to the institutional review

board.

Table I. Demographic characteristics of sample

Demographic Characteristics		
	Number of Participants	Percentage of Participants
Gender		
Female	12	60
Male	7	35
Non-binary	1	5
Age		
23-29	3	15
30-39	12	60
40-43	3	15
58	2	10
Ethnicity		
African American	1	5
African American/Sicilian/Caucasian	1	5
American	6	30
Chinese	1	5
German/Mexican	1	5
Italian/Irish	1	5
Midwestern American/German	1	5
Narragansett/Sephardic Jewish/Venezuelan	1	5
Non-Hispanic	1	5
Northeast American/Polish	1	5
Polish/German/Indian	1	5
Southern American	2	10
White American	2	10
Education		
Graduated high school	4	20
Attended college but did not complete	5	25
Completed an Associate's degree	3	15
Completed a Bachelor's degree	5	25
Completed a Master's degree	3	15
Income		
Low Income	8	40
Lower-Middle Income	2	10
Middle Income	10	50
	M	*SD*
Variables of Interest		
Medication Use	9.60mg	23.88mg
Benzodiazepines	1.73mg	3.90mg
Sleep Medications	0.39mg	1.16mg
Opioids	0.34mg	1.82mg
Barbiturates	0.16mg	2.17mg
Antidepressants	5.69mg	24.79mg
Hydroxyzine	22.00mg	8.20mg
Cannabis	0.79mg	0.61mg
DERS	91.55	24.63
BEAQ	56.05	12.75
ICG-R	28.21	8.67

Notes:
EMA period: Medication Use included drug classes: benzodiazepines, opioids, sleep medication, barbiturates antidepressants, medical marijuana, and the individual medication hydroxyzine. At baseline: DERS: Difficulties in Emotion Regulation Scale. BEAQ: Brief Experiential Avoidance Questionnaire. ICG-R: Inventory of Complicated Grief – Revised

Procedure

The present study evaluated the feasibility and acceptability of an EMA protocol measuring grief-related antecedents, such as separation and traumatic distress, and patterns of prescription drug use using a three times/day questionnaire over a 14-day period subsequent to a baseline assessment. Recruitment for the present study was originally set to take place from Crossroads Hospice, a non-profit organization who provides hospice/palliative care and grief-related support for loved ones. Weekly resources are mailed to families following the death their loved ones, which included the present study's flyer with a QR code for the screener. However, no screeners were completed using the QR code following one month of active recruitment. Therefore, we decided to also recruit subjects from Amazon MTurk, an online labor market created by Amazon where individuals can complete tasks (e.g., research questionnaires) for compensation. Amazon MTurk was chosen for the present study due to this author's familiarity with the mechanics of MTurk. A total of 22 individuals used the QR code from the Crossroads flyer to complete the screener. Therefore, pre-baseline screening was mainly executed via MTurk with a short online survey where eligibility to participate in the current study was assessed. Participants endorsed if they were taking prescription medication (with or without a prescription), then they were asked to identify if they were using specific medications with high misuse potential. Participants were not automatically deemed ineligible from the study if they did not endorse one of the medications stated on the screener. This was due, in part, from the general lack of guidelines for prescribing medications for grief. Eligible participants (i.e., endorsed losing a loved one within the past year and using prescription medication) were then asked to click on a link that would direct them to enter their contact information to be contacted by study personnel through Expiwell.

If participants were interested in participating in the study and willing to meet for baseline

following entering their contact information, then this author would review medications at

baseline. For instance, three participants identified hydroxyzine, a commonly prescribed anti-

anxiety medication that has been compared to Xanax, at baseline. Expiwell is a phone app

specifically designed for EMA purposes. Participants have the ability to choose the amount

of personal information they wish to provide (e.g., name, age, gender) when creating an

account with Expiwell. Further information on Expiwell's privacy and data monitoring can

be found at https://app.expiwell.com/privacy. Eligible participants were subsequently

contacted via phone call/text or email to schedule the baseline assessment. Participants were

given the option to complete the baseline assessment battery via Zoom or over the phone. At

baseline, participants were read the consent form and given time to ask any clarifying

questions. Participants then completed the baseline assessment battery via Expiwell, an EMA

phone app. Participants downloaded the mobile EMA app onto their smartphone. During the

14-day EMA period, participants completed questionnaires three times per day (9:00-

12:30pm, 12:30pm-4:30pm, 4:30pm-9:00pm) related to medication use, cravings, and grief-

related separation and traumatic distress symptoms. Each time-point assessment took

approximately two minutes to complete. Participants were allotted up to the next

questionnaire prompt to complete each questionnaire as per Papp et al. (2020). This writer

trained participants on the EMA protocol following completion of the consent and

downloading the phone-based application. This included monitoring participants while they

completed the baseline assessment to problem solve any technological difficulties that

occurred. Participants were given this writer's academic-affiliated email to contact during the

allotted assessment hours to resolve any problems hindering them from completing the

questionnaires. Since the nature of questionnaires pertain to cravings and distress levels, participants were also be given resources to contact (e.g., crisis hotline and suicide hotline) should they feel overwhelmed. No participant utilized these resources, to this writer's knowledge.

Participants were paid $0.05 to complete the screener on MTurk and $20 for the baseline assessment. For the 14-day period, participants were compensated up to $42 for completion of the 42 assessments (three times/day over 14 days) at the end of the 14-day period via Amazon gift card through the Expiwell app. Participants were given an acceptability questionnaire at the last EMA questionnaire.

Measures

Screener

Participants were asked to specify their age, if they had experienced a death in the past year, the cause of death (e.g., sudden vs natural), date of the death, and the relationship with the deceased. Participants specified current prescription medication use from commonly prescribed classes among recently bereaved individuals (e.g., benzodiazepines, SSRIs, opioids), and to specify which type (please refer to screener in Appendix). Participants were not required to have a prescription from a medical doctor to participate in the study. Participants were required to have a working smartphone. Finally, participants were asked if they have been diagnosed with a psychotic disorder, if they are actively experiencing suicidal ideations, and if they are currently taking medication for these. See Appendix B.

Demographics

Participants completed a demographics questionnaire with information regarding their age, sex, gender, race, level of education, and income level. See Appendix C.

Grief Measures

Inventory of Complicated Grief

The ICG-R (Prigerson et al., 1995; Prigerson & Jacobs, 2001) was used to assess maladaptive symptoms of grief. The ICG-R is a 19-item self-report measure rated on a scale from 0 to 5 with varying answer prompts depending on the question. The ICG-R has two specific subscales examining separation distress and traumatic distress. Items 2, 3, 5, 6, and 22 are summed to measure separation distress and item examples include (2) *I think about ___ so much that it can be hard for me to do the things I normally do*, and (5) *I feel myself longing and yearning for _____*. Items 4, 7, 8, 9, 11, 14, 17, 19, 21, 23, and 26 are summed to measure traumatic distress, then divided by 11 (the number of items in the traumatic distress subscale) and multiplied by five (the number of items in the separation distress scale). Items include (14) *I feel that life is empty or meaningless without _____*, and (21) I feel like the future holds no meaning or purpose without _____. The ICG-R exhibited good internal consistency in separation distress and traumatic distress (α = .83 and α = .89, respectively) in a sample of bereaved college students (Holland & Neimeyer, 2011). The full scale ICG-R was administered at baseline, with the separation distress and traumatic distress subscales administered daily for the 14-day EMA. See Appendix D.

Prescription Medication Use Measures

EMA Prescription Medication Questions

A prescription medication use questionnaire was created to measure the type, the frequency, and the amount of prescription medication used since the last assessment during the two-week EMA period. Each medication question will be tailored to the type of medication each participant has endorsed using. For example, if a participant endorses using

Ativan, then questions will consist of "*Since last data entry, did you take your Ativan? Yes No*" (measured as a dichotomous variable)*, and *"How much Ativan did you take?"* (measured as a continuous variable in mg). Participants will be given a space to enter the amount of each medication ingested. Total amount of medication (in mg) for each time point was calculated for the main analyses. For example, if a participant ingested 5mg of a sleep medication and 2mg of a benzodiazepine, then a total of 5mg of medication use was calculated for analyses. Antidepressant and cannabis use were also measured under medication use. These two classes were added to the EMA prescription medication questions due to the ever-growing evidence of antidepressant misuse (Evans & Sullivan, 2014; Schifano & Chiappini, 2018) and the well-known propensity to misuse medicinal cannabis (Lee et al., 2020). See Appendix E.

EMA Craving Questions

Two questions pertaining to the frequency and intensity of cravings for prescription medication were used. These consisted of, "*Since last data entry, how FREQUENT are your medication cravings?*" and "*Since last data entry, how INTENSE are your drug CRAVINGS?*" Both questions were measured on a 100-touch point continuum, with anchors at "No Cravings" to "Very Frequent/Intense." These questions were derived from (Huhn et al., 2016) in an EMA in a sample of treatment seeking prescription opioid medication users. The craving questions were asked three times daily during the 14-day EMA. See Appendix F.

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Emotion Regulation Measures

</div>

Difficulties in Emotion Regulation Scale

The DERS (Gratz & Roemer, 2004), a 36-item self-report measure, was used to examine emotion regulation processes. The DERS consists of six subscales which include (1)

Awareness or lack of awareness of emotional responses, (2) Clarity or lack of clarity of emotional responses, (3) Nonacceptance of emotional responses, (4) Strategies or limited access to emotion regulation strategies perceived as effective, (5) Impulse or difficulties controlling impulses, and (6) Goals or difficulties engaging in goal-directed behaviors while in a negative emotion state. Examples of items from each subscale include, (1) "*I pay attention to how I feel*," (2) "*I have no idea how I am feeling*," (3) "*When I'm upset, I become angry with myself for feeling that way*," (4) "*When I'm upset, I believe that I will remain that way for a long time*," (5) "*When I'm upset, I feel out of control*," and (6) "*When I'm upset, I have difficulty concentrating*." Items are rated on a scale ranging from (1) Almost Never to (5) Almost Always. Items 1, 2, 6, 7, 8, 10, 17, 20, 22, 24 and 34 are reversed scored. Total and subscale scores are calculated by summing all items. The DERS has demonstrated good internal consistency with alphas ranging from 0.80 to 0.89 (Gratz & Roemer, 2004). The DERS was administered at baseline. See Appendix G.

Brief Experiential Avoidance Questionnaire

The Brief Experiential Avoidance Questionnaire (BEAQ; Gámez et al., 2014) was used to assess active avoidance of emotions and is a 15-item self-report measure ranging from (1) Strongly disagree to (6) Strongly agree. Items include questions such as "*When unpleasant memories come to me, I try to put them out of my mind*" and "*I feel disconnected from my emotions*." The total score is calculated by summing all items after reverse scoring item 6. The BEAQ has showed good internal consistency with an alpha of 0.84 (Gámez et al., 2014). The BEAQ was administered at baseline. See Appendix H.

Acceptability Measure

Acceptability Questionnaire

Acceptability was measured based on questions from Papp et al. (2020). Participants were asked how user friendly the Expiwell app was to access and complete based on a (0) Not Friendly to (3) Very Friendly scale. Participants were asked how relevant these reports were to their grief experience, how helpful the research team was in addressing problems or questions participants may have had, and whether they would recommend the research study to others. The acceptability questionnaire was administered during the last questionnaire prompt on day 14. See Appendix I.

Data Analysis Plan

Following study completion, data was deidentified for primary data analyses. A hard copy study log linking participant names with study ID numbers is kept on a locked, password-protected server until July 31, 2023.

Using IBM SPSS Version 27 (IBM Corp, Released 2020), descriptive statistics were computed for all relevant variables. Demographic factors relevant to enrollment and retention were explored. Descriptive statistics evaluated participants' responses on the acceptability forms regarding the EMA and assessment battery content, delivery format, and methodology.

Hypothesis One – Feasibility

Using basic descriptive statistics, the proportion of individuals approached about the study who proceeded with enrollment versus did not was examined. Feasibility of methodology was assessed using the mean number of daily questionnaires completed. We expected feasibility would be demonstrated by a 70% adherence rate (minimum of 29 assessments completed out of the 42 assessments in the two weeks).

Hypothesis Two -- Acceptability

We examined the overall acceptability rate from the Acceptability Questionnaire by summing the total score. Total scores range from 0 – 13. Higher scores reflect more acceptability.

Hypothesis Three – Effect Size

A series of linear mixed models (LMM) were conducted to derive covariance parameter estimates to calculate effect sizes for associations between key variables of interest and prescription medication use outcomes. SPSS does not automatically produce effect size estimates for LMMs; therefore, this researcher is following guidelines from Snijders & Bosker (2012).

$$R_1^2 = 1 - \frac{\hat{\sigma}^2(full) + \hat{\tau}_0^2(full)}{\hat{\sigma}^2(null) + \hat{\tau}_0^2(null)}$$

First, two unconditional models were run with the dependent variables (i.e., craving/medication use) to assess the amount of residual covariance in cravings and medication use not accounted for by time. Running the unconditional models sans regressors (i.e., separation/traumatic distress) yields the residual variance of the null model (V_{null}). Next, four conditional [full] models were run with the independent variables added one at a time to derive the residual covariance parameter estimates for each model to assess the amount of covariance not accounted for by time and each predictor variable, respectively.

Hypothesis Four – EMA Change

Time series analyses were conducted through LMM to examine whether separation distress and/or traumatic distress was associated with prescription medication use after controlling for baseline levels of experiential avoidance and emotion regulation. LMM analyses are often

utilized for EMA data because it accommodates missing data resulting from missing assessments by estimating parameters based on available data per participant (Gueorguieva & Krystal, 2004). More specifically, separation distress and traumatic distress was entered as time dependent covariates while prescription medication use was entered as the dependent variable. Additionally, separation distress and traumatic distress were entered as the time dependent covariates with craving entered as the dependent variable. To account for effects of time, a time-of-day variable was created as a three-level effect to account for the three time points participants completed assessments per day. Similarly, a time variable was created as a 14-level effect to account for the 14 days participants completed assessments. Initial analyses were run with separate models for separation distress and traumatic distress, respectively. Finally, LMM analyses were run with separation and traumatic distress together to examine variance on the dependent variables.

CHAPTER 3

RESULTS

Hypothesis One – Feasibility

Using Amazon's MTurk and Crossroads Hospice and Palliative Care to recruit

potential participants, a total of 744 people completed the screener. A total of 92 people were

deemed ineligible due to a recent suicide attempt and, therefore, excluded from participation.

Nine participants were excluded from participation due to a diagnosis of psychosis. Eligible

participants ($n = 643$) were then informed about their eligibility to participate in a larger

study and asked to click on a link that would direct them to enter their contact information to

be contacted by study personnel. A total of 230 participants proceeded to the Expiwell site to

enter contact information. However, 62 participants left the information blank. Of the 230, a

total of 168 (73.0%) participants left information to be contacted for enrollment. All

participants were contacted via email or phone call to schedule the baseline session. Twenty-

three (13.7%) participants met with research personnel for the baseline session. Three were

excluded at baseline for the following reasons: one participant could not make the time

commitment, and two participants were not taking medication with high misuse potential.

Out of 23 people who completed baseline assessments, 20 (86.9%) were enrolled in the

present study. One participant was enrolled from Crossroads Hospice and Palliative Care. All

other participants were recruited from MTurk. No significant differences in age, relationship

to the deceased, or type of loss were present between participants who enrolled and those

who did not (please see Table II). No participants were lost to follow-up.

Table II. Enrolled vs. Not enrolled

	Enrolled		Not Enrolled			
	M	*SD*	*M*	*SD*	*t*	*p*
Age	36.00	9.50	39.34	11.55	0.37	0.72
Relationship to Deceased	4.72	1.36	4.38	1.42	-1.02	0.31
Type of Death	5.11	1.88	4.50	1.81	-1.40	0.16

Notes: Independent samples t-test between enrolled vs not enrolled participants.

Although the present study did not meet the target *N* of 30, the average number of participants recruited per month was 2.85 with 10 participants as the highest amount recruited in one month and the lowest as zero participants recruited. Feasibility and retention were also examined by the mean number of daily questionnaires completed. Results revealed the average number of assessments completed was 36.05 (*SD* = 8.26), which indicates an 85.8% adherence rate. Most participants (*n* = 17; 85.0%) completed at least 70.0% of the 42 assessments with 14 of the 17 participants completing 85.8% of the 42 assessments.

Hypothesis Two -- Acceptability

We examined the overall acceptability rate from the Acceptability Questionnaire by inspecting item level responses as well as summing the total score. Total scores range from 0 – 13. Higher scores reflect more acceptability. The lowest acceptability score given was a seven and the highest a 13. The mean total score was 9.78 (*SD* = 1.77). Participants were given the opportunity to include a comment reflecting their experience with the study. Please refer to Table III and Table IV.

Table III. Acceptability scores.

	Acceptability									
	Relevance		Burdensome		User Friendly		Helpfulness		Recommend	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
	2.22	0.88	1.17	1.04	2.78	0.43	2.76	0.69	0.94	0.24
Item Scale	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
0	1	5.6	6	33.3	X	X	X	X	(No) 1	5.6
1	2	11.1	5	27.8	X	X	2	11.1	(Yes)17	94.4
2	7	38.9	5	27.8	4	22.2	2	11.1	X	X
3	8	44.4	2	11.1	14	77.8	14	77.8	X	X

Note: X indicates participants did not endorse rating on scale.

Table IV. Participant comments.

Participant	Total Score	Comment
1	7	Fix the notifications if a problem happens, I forgot a few times other than the morning because I was so busy.
2	12	I wanna do other study also.
3	10	It has been a great pleasure to be part of this experiment.
4	11	This was an interesting study even though on some days it was very hard to complete.
5	11	None.
6	9	It was a good survey.
7	9	Was a very smooth experience, thank you. Being able to customize the windows for surveys would have been helpful, though. I don't work 9-5 every day.
8	10	No comment
9	10	Great study! Expiwell app was so-so. Somewhat buggy. Not unmanageable, worked most times.
10	7	Ask different questions.
12	11	Nothing it was a good study.
14	10	great communication from Aisling Henschel whenever I had questions. If the payments were instant, I may not have missed as many, that part was admittedly demotivating.
15	8	Perhaps add "other" to the medication list with the ability to then write it in.
16	12	This was one of the most fascinating studies I've gotten to participate in. If you have any similar projects coming out soon, please reach out to me. I would love an invite to any further research you may have going on. I do help the data I've provided proves useful to your team.
17	7	I never got paid as of yet.
18	10	To make sure the user can see the gift card, or find another way to pay for the study, maybe through a bonus in MTurk site.
19	13	Great study.
20	9	Many thanks to Aisling for her incredible responsiveness and assistance in addressing the tech glitches I experienced during this study. It felt redundant to me so I didn't feel confident my data was really providing any useful insights in terms of "patterns" that you could draw conclusions from but I'm very appreciative of how kind Aisling was in giving me daily prompts manually to replace the glitchy app prompts. Thanks, and best of luck with your research!

Note: Participant comments for acceptability of EMA paradigm.

Hypothesis Three – Effect Size Estimates

A series of linear mixed models (LMM) were conducted to derive covariance parameter estimates to calculate effect sizes for associations between key variables of interest and prescription medication use outcomes. Many statistical software packages, including SPSS, do not automatically produce effect size estimates for LMMs; therefore, this researcher followed guidelines from (Bosker & Snijders, 2011) for estimating the amount of variance accounted for by each independent variable by estimating R^2. Parameters to determine effect size include: 0.01 - 0.08 as small, 0.09 – 0.24 as medium, and 0.25 or higher as large effect sizes (Cohen, 1988).

First, two unconditional models were conducted with the dependent variables (i.e., medication use/craving) to assess the amount of residual covariance in cravings and medication use not accounted for by time or other factors. Running the unconditional models sans regressors (i.e., separation/traumatic distress) yielded the residual variance of the null model.

Next, six conditional [full] models were run with the independent variables added one at a time to derive the residual covariance parameter estimates for each model to assess the amount of residual variance remaining in the dependent variable after adding each regressor. Results found a small effect size for separation distress on medication use ($R^2 = .01$) and a small effect size for traumatic distress on medication use ($R^2 = .005$). For craving intensity, separation distress yielded a medium effect size ($R^2 = .20$) and a large effect size for traumatic distress ($R^2 = .25$). Finally, small and medium effects sizes for craving frequency were shown for separation distress ($R^2 = .01$) and traumatic distress ($R^2 = .11$), respectively.

Hypothesis Four – EMA Change

Time series analyses were conducted through LMM to examine whether separation distress and/or traumatic distress, after adjusting for experiential avoidance and emotion regulation strategies and accounting for linear time trends, is associated with prescription medication use and cravings. When separation distress was run independently (sans traumatic distress) with experiential avoidance, emotion regulation, time-of-day, and time, time was the only factor associated with medication use, Estimate = 1.29, *SE* = 0.47, *t* = 2.74, *p* = .007, 95% CI [0.36, 2.23], such that the amount of medication used increased with time. When traumatic distress was run independently with experiential avoidance, emotion regulation, time-of-day, and time, time was again the only factor associated with medication use, Estimate = 1.27, *SE* = 0.48, *t* = 2.67, *p* = .009, 95% CI [0.33, 2.21]. Findings were consistent when experiential avoidance, emotion regulation, separation distress, traumatic distress, time-of-day, and time were combined in the same analyses such that time was the only factor associated with medication use, F (1, 120) = 7.23, *p* = 0.006, Estimate = 1.34, *SE* = 0.48, *t* = 2.80, *p* = .006, 95% CI [0.39, 2.30].

In terms of craving intensity, statistically significant relations were found such that increases in separation distress were associated with more intense cravings, Estimate = 2.70, *SE* = 0.27, *t* = 10.10, *p* < .001, 95% CI [2.17, 3.23]. Similarly, statistically significant relations were found such that increases in traumatic distress were associated with more intense cravings, Estimate = 3.47, *SE* = 0.35, *t* = 9.95, *p* < .001, 95% CI [2.78, 4.15]. Experiential avoidance, mechanisms of emotion regulation, time, and time-of-day did not significantly predict craving intensity in either model. When separation distress and traumatic distress were added into the same model, as opposed to separately, results yielded almost

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identical findings with separation distress, Estimate = 1.70, *SE* = 0.37, *t* = 4.60, *p* < .001,

95% CI [0.98, 2.43] and traumatic distress, Estimate = 1.95, *SE* = 0.48, *t* = 4.17, *p* < .001,

95% CI [1.01, 2.90], associated with more intense cravings.

As for craving frequency, no statistically significant associations were found between

separation distress, experiential avoidance, mechanisms of emotion regulation, time, or time-

of-day and craving frequency. However, statistically significant relations were found such

that increases in traumatic distress were associated with more frequent cravings, Estimate =

1.08, *SE* = 0.44, *t* = 2.46, *p* = .01, 95% CI [0.22, 1.94]. Once again, when separation distress

and traumatic distress were added into the same model, similar effects were found with no

statistically significant effect for separation distress on craving frequency. See Table V.

Table V. Medication use, craving intensity, and craving frequency.

Fixed Effects	Medication Use			Craving Intensity			Craving Frequency		
	Estimate	*SE*	*t*	*Estimate*	*SE*	*t*	*Estimate*	*SE*	*t*
Intercept	5.32	27.13	0.20	-4.25	19.79	-0.22	1.92	24.52	0.08
Experiential Avoidance	0.02	0.54	0.03	-0.40	0.53	-0.75	0.09	0.65	0.13
Emotion Regulation	-0.08	0.26	-0.29	0.08	0.27	0.31	0.10	0.33	0.31
Separation Distress	-0.78	0.85	-0.91	1.70	0.37	4.60***	-0.39	0.43	-0.90
Traumatic Distress	0.36	1.03	0.35	1.95	0.48	4.07***	1.43	0.60	2.41*
Time-of-Day	4.62	2.53	1.83	-0.79	0.84	-0.94	0.74	0.99	0.75
Time	1.34	0.48	2.78**	0.19	0.17	1.12	-0.16	0.20	-0.81

Notes: *p* < 0.05* *p* < 0.01** *p* < 0.001***

CHAPTER 4

DISCUSSION

Grief is a common, often painful, experience most people will experience in their lifetime. Bereaved individuals rely on their innate emotion regulatory processes to manage their grief and may turn to medical professionals for help who, lacking clear guidelines for prescribing in this area, may prescribe a medication with high misuse potential. To date, little evidence exists supporting a positive impact of prescription medication use in ameliorating grief-related reactions, but there is increasing evidence that prescription medication may blunt the normative grief process and put bereaved individuals at higher risk for misuse (Warner et al., 2001).

To this writer's knowledge, this is the first study to examine prescription medication use post-bereavement utilizing an EMA paradigm. The present study aimed to examine the feasibility and acceptability of conducting a 14-day EMA with individuals receiving questionnaires three times per day. The second aim of the present study was to inform appropriate sample size estimates to power future studies by examining the magnitude of effect amongst medication use and craving intensity/frequency. Finally, we aimed to explore how grief-related antecedents, particularly separation distress and traumatic distress, may drive prescription medication use and cravings for medication.

We hypothesized that conducting an EMA paradigm in a bereaved sample who recently lost a loved one would be feasible. Feasibility was defined by a recruitment rate of three participants per month and a 70% adherence rate - or a minimum of 29 assessments completed out of the 42 assessments for the two weeks. Recruitment for the present study proved to be more difficult than originally anticipated within a community sample. At first,

Crossroads Hospice was chosen as the primary site for recruitment. However, following a

month without any screeners completed, the researchers pivoted to MTurk as the main

recruitment source. There could be several reasons for the lack of recruitment on the local

level. Once MTurk – a population both familiar with technology and participating in research

studies - was added to recruitment, the target monthly recruitment rate was a little under three

participants per month -supporting the hypothesis that the EMA paradigm is feasible in a

bereaved population. However, adjustments may be made moving forward for recruitment at

local grief-related support networks and increase feasibility of conducting an EMA paradigm.

For instance, weekly flyers were mailed out to potential participants with a QR code and link

to the screener. This can feel rather impersonal to grieving individuals who may question the

motives of the research team in the absence of other information. Having research personnel

present the study information to grief support groups to not only answer real-time questions

or worries around technology-based research, but also have interpersonal presence, may

mitigate these feelings and enhance recruitment from local populations going forward. Our

hypothesis was supported positing participants could tolerate such a paradigm with the

present study exhibiting an 86% adherence rate with an average of 36 assessments completed

out of 42 total assessments. Although an EMA has not been conducted before in a bereaved

sample using prescription medication, similar adherence rates have been found (84.2%) in a

sample of prescription opioid and medical marijuana users living with chronic pain (Goodell

et al., 2021). Most notably, the EMA tasks participants were asked to complete were more

extensive with a 30-day period and a total of five questionnaire prompts per day. Similarly,

Papp et al. (2020) exhibited an adherence rate between 69% – 73% in a sample of college

students using prescription medication who participated in a 28-day EMA completing four

questionnaire prompts per day. Our present findings, along with existing literature, further provides evidence that EMA paradigms are a practical way to obtain real time data of emotional processes and engagement in health risk behaviors, including in bereaved populations.

To further understand the tolerability within the present sample, gathering participants' acceptability ratings and comments around the EMA methodology was imperative. Overall, participants found the daily questionnaires relevant to their grief experiences. They found the three prompts per day somewhat burdensome, but the Expiwell app user friendly. Although participants rated the Expiwell app user friendly, several participants voiced complaints over technological glitches they experienced with the phone app including inconsistency with notifications and question options, and problems with payments. Participants also voiced concerns of redundancy in questionnaires. Goodell et al. (2021) found similar problems following completion of the 30-day EMA with participants' concerns including problems with notifications – either not receiving notifications or receiving too many, redundancy in questions, and having to respond to questionnaires despite how they felt. Biello et al. (2020) also found a 14-day EMA to be highly acceptable in a sample of people who inject drugs with all participants ($N = 29$) reporting they would be willing to participate in future, similar studies. All participants in the present study, except one participant, reported they would recommend this study to a friend. Taken together, examining grief-related antecedents in a sample of prescription medication users is not only feasible, but highly acceptable to the participants themselves.

To ascertain the appropriate sample size to power future studies, the present study examined estimated effect sizes amongst separation distress and traumatic distress on

medication use, craving intensity, and craving frequency. Both separation and traumatic distress yielded small effect sizes for medication use, meaning other extenuating factors may be driving medication use within individuals outside of separation and traumatic distress. For craving frequency, separation distress showed a small effect size while traumatic distress showed a medium effect size. Most interestingly, separation and traumatic distress exhibited medium to large effect sizes on craving intensity, which can be used to estimate power for larger, future studies.

To date, the present study is the first to specifically examine the association between grief-related experiences – separation and traumatic distress – and prescription medication use, along with craving intensity and frequency for these substances. Given the well-established knowledge that emotion regulation difficulties are present within substance users (Stellern et al., 2023), as well as experiential avoidance (Shorey et al., 2017), emotion regulation strategies were included as potential covariates in our time series analyses. The present study found that time, a variable constructed to reflect days in the study, was associated with medication use. In other words, participants ingested more medication the more days they used medications. Interestingly, emotional regulatory processes and grief-related antecedents were not associated with medication use. Although the present sample exhibited a mean score similar to a clinical sample diagnosed with emotional disorders on the DERS (Hallion et al., 2018). Most existing literature examining motives for prescription medication misuse primarily utilize samples of college-aged young adults or medical (e.g., chronic pain) samples. Rigg and Ibañez (2010) examined motives for prescription medication misuse (either pain killer or sedative classes) in a multitude of samples (e.g., street drug users, methadone maintenance patients, and publicly funded residential drug treatment

patients) living in South Florida. They found that the three most common motives for use were to sleep, for pain relief, and to relieve anxiety/stress. In a systematic review from Votaw et al. (2019), motives for benzodiazepine misuse included increased sleep and reducing anxiety. Although we cannot definitively say what may be driving prescription medication use outside of time, more research is needed to examine other motives that may be increasing medication use in a bereaved sample. Time impacting medication use may also be due to higher attentiveness to the procedure at the early stages of reporting. Papp et al., (2020) found similar effects in a sample of prescription medication users following completion of a 28-day EMA. Participants may be more hesitant to report sensitive behaviors like prescription medication use earlier in the EMA period but may grow more comfortable in engaging in questionnaires in the latter period. Additionally, participants may be more likely to engage in medication use the longer they track the use. Although the present analyses only accounted for linear time trends, further exploration found an increase in medication use on Day 9 in this sample. This potentially implies episodic substance misuse where participants may be ingesting medication at a higher rate some days than others. This, of course, is highly speculative at present, binge drinking literature has often posited emotional coping as motive for episodic drinking (Brockdorf et al., 2022; Lannoy et al., 2017).

Most notably, separation distress and traumatic distress were the only significant predictors of craving intensity. Burgeoning literature has posited that symptoms of grief and substance misuse may both arise from reward system mechanisms (Barton, 2022; Kakarala et al., 2020; Williams et al., 2019). Barton (2022) explains that cues (whether substance reminders or reminders of a loved one) can drive both cravings in substance users, and feelings of yearning for the bereaved. Schneck et al. (2017) has found that grief-related cues

are related to dopaminergic signaling in the dorsal striatum; a mechanism that has also been found in substance-related cues in substance use research (Cox et al., 2017). Like someone who experiences a substance use disorder engaging in substance-seeking behavior to alleviate craving when triggered by drug-related stimuli, a bereaved person's dorsal striatum may trigger yearning for the deceased following exposure to reminders of the loss (e.g., objects, memorabilia) and may lead to behaviors seeking relief from the more painful aspects of yearning and associated grief symptoms (Barton, 2022). Also similar to substance users, bereaved individuals exhibit higher reward sensitivity which drives engagement in positively reinforcing behaviors such as proximity seeking and yearning for the lost loved one as a means to avoid negative affect (Williams et al., 2019). As noted previously, separation distress has been characterized as intense yearning or longing for the deceased, distressing pangs of loneliness, and/or a preoccupation with reminders of the deceased (Holland & Neimeyer, 2011). Given the neurobiological and trait similarities between substance misuse and grief, along with findings that separation distress was directly associated with cravings, the present study contributes to the mounting evidence that prescription medication with high misuse potential may be contraindicated in the treatment and management of grief.

Traumatic distress was also significantly associated with craving intensity. Traumatic distress involves avoidance of reminders or acknowledging the loss, emotional numbing, feelings of shock or being stunned by the loss, feelings of emptiness and lack of purposefulness about the future, difficulties imagining a rewarding life without the deceased, feeling that a part of themselves has also died, feeling angry, and experiencing a shattered worldview. Of particular note, all but one of the present sample endorsed experiencing a traumatic bereavement, or a death that is considered unexpected or untimely, involved

violence, resulted in bodily injury to the deceased, was caused by a perpetrator with intent to harm, or was considered unjust by the survivor (Barlé et al., 2017). As established, large gaps exist in the literature between grief-related traumatic distress and substance use – particularly cravings. However, there is no shortage of literature examining the relationship between posttraumatic stress disorder (PTSD) and substance-related cravings. For instance, Simpson et al. (2012) followed 29 trauma-exposed participants – 26 participants met criteria for PTSD – entering alcohol use treatment for 28 days. They found that greater daily PTSD severity was associated with greater daily alcohol craving. Romero-Sanchiz et al. (2022) found that, in a sample of 51 trauma-exposed cannabis users, cravings for cannabis were even stronger after exposure to trauma cues above and beyond cannabis-related stimuli. These findings further emphasize that, in addition to the desire to reduce yearning, bereaved individuals may also use prescription medication as a means to avoid traumatic distress related to the loss.

Traumatic distress was the only predictor associated with craving frequency. Interestingly, previous literature may have explained this association through the role experiential avoidance, and attempts at emotional suppression, play in PTSD and substance use (Henschel et al., 2022; Henschel et al., 2021). However, we see in this sample that suppression and experiential avoidance were not associated with craving frequency when modeled simultaneously with separation and traumatic distress. Therefore, the relation between traumatic distress and craving frequency may best be explained through the shattered world-view theory (Janoff-Bulman, 1998), in which bereaved individuals may be experiencing negative global beliefs throughout the day leading to frequent cravings to alleviate distressing thoughts. It is important to note that emotion regulatory processes, and strategies, were only explored as how they directly relate to medication use and craving

intensity/frequency. Williams et al., (2019) found that, specifically, grief-related distress and experiential avoidance interact together and impact the severity of grief-related outcomes. This may be the case here and more exploration is needed to examine how emotion regulatory processes impact bereavement-related sequalae. Taken together, the present findings show that, in all, the function of craving prescription medication may be to mitigate grief-related distress. This aligns with the SMH where prescription medication may act as an immediate alleviation of distressful affects and inadvertently create an overall higher intolerance for distress related to the loss (Khantzian, 1997, 2003; Suh et al., 2008).

Limitations and Future Directions

Several limitations must be noted within the present study. Although EMA paradigms are considered longitudinal, the data collection time period per participant lasted only two weeks. Analyses using LMM cannot generalize to a longer time period than the time period used in the EMA, meaning, associations between separation/traumatic distress on prescription drug cravings/administration may be similar on a week-to-week basis. However, these associations may look different in a year. Second, history, a threat to internal validity, may impact findings with the COVID-19 pandemic and other global bereavement amplifying the general public's stress reactions. Especially with the increase in gun violence, research has suggested that not only are the loved ones of the deceased impacted, but society is collectively grieving these losses (Wagoner & de Luna, 2021). If society is impacted as whole, participants who have recently lost a loved one and are taking prescription medications may experience an exacerbation of grief reactions brought on by the escalation of gun violence and the global pandemic. Third, because SPSS does not produce effect size estimates in LMM, this writer used a commonly used formula for estimating R^2, though

several calculations exist for estimates of effect size (Bosker & Snijders, 2011; Nakagawa &

Schielzeth, 2013) and each may yield slightly different results.

Most of the present sample indicated sudden and traumatic loss as the means of their

loved one's death, and type of loss has been well documented in the literature to influence

negative sequalae post-loss (Boelen et al., 2017). However, some grief literature has found

little difference in grief responses between sudden versus anticipated loss (Carr et al., 2001).

We may suspect suddenly bereaved individuals to experience more intense distress post-loss

due to the unexpected nature of the death. This may look different in anticipated grief where

loved ones may have discussed coping mechanisms with the surviving person (Carr et al.,

2001). This intense distress post-sudden-loss, and subsequent prescription medication-

seeking behavior, may influence the generalizability of the present sample and may not be

indicative of all grievers, but rather grievers from traumatic loss. Future research should

examine bereavement type (i.e., sudden/traumatic loss versus anticipated loss) specifically

with the present paradigm. This may further elucidate grief-related antecedents, and motives

to use, with prescription medication use. Additionally, the present study did not screen for

PTSD or depression symptoms; two negative consequences often associated with traumatic

bereavement. As stated previously, PTSD symptom severity has been posited as a direct

antecedent to craving and substance misuse. Although we found separation/traumatic distress

to be highly associated with craving intensity, we did not find this to be the case with

medication use. Future research is needed to examine the interaction between PTSD and grief

and examine the relationship between PTSD and prescription medication misuse in the

bereaved population. History of substance use, or historical patterns of use, were also not

explored in the present sample which could drive patterns of prescription medication use

beyond grief-related antecedents. Future research should more clearly examine both the severity of past and current substance use in bereaved samples using prescription medication, as well as time of onset to first use of prescription medication post-loss to better identify potential factors associated with the development and maintenance of grief over time.

Due to the limited sample size and the heterogeneity of substances endorsed, we were unable ascertain whether the present findings vary by drug class. We also cannot explore diversity-related differences such as gender, race/ethnicity, or socioeconomic effects. Participants were also not assessed for diagnostic criteria of PGD, a formal diagnosis of pathological grief, given that most of these participants were all within one-year post-loss, and PGD cannot be formally diagnosed until after one-year post-loss (APA, 2022). No research, to date, has examined the association between PGD and prescription medication use. Therefore, future research needs not only to expand the sample size to examine drug-class specific effects, but also expand to examine differences in bereaved individuals who meet criteria for PGD versus who do not. The present study also limited the timeframe since the loss to within one-year post-death, except for one participant. Shah et al. (2013) estimated an 8.4% increase of bereaved individuals seeking prescription medication to cope with grief from two months (9.4%) to one-year (17.9%) post-loss. These researchers shed light on the chronicity of grief reactions should they not naturally resolve, and more research is needed to examine this trend in prescription medication use outside of the one-year timeline.

EMA research is providing increasing evidence in the efficacy of collecting real-time data to observe behavioral patterns but, due to its relative newness in the research field, researchers are continually examining ways to improve the methodology. One pitfall of EMA methodology documented is the lack of personalization to the questionnaires and the

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perceived burden from participants (Bos et al., 2023). The present study attempted to address this by providing participants branching logic for different medications to reduce burden of siphoning through every prescription medication explored. Unfortunately, participants still had to answer if they had taken a certain class of medication (e.g., benzodiazepine or SSRI) but, once they endorsed a specific medication (e.g., lorazepam), participants were directed to questions only specific to that medication. Future research should reduce the burden for participants further by individualizing each survey to participants. For instance, if participants had endorsed use of a certain medication, then they should only receive prompts for that medication. The present study also did not account for the burden participants may have experienced who carry full-time employment and how this may impact response rates. In other words, does full-time employment impact response rates when participants may be busy at work during the day? Future research should allow more flexibility in response times, as well as allow participants to self-initiate questionnaires between scheduled assessments.

Finally, the Expiwell app experienced numerous, rather burdensome glitches for participants; including delays in payment, glitches in branching logic, and notifications randomly failing to send. This created extra burden on participants in which they had to continuously stay in contact with this researcher. Participants were patient and communicative with this researcher, but expressed frustration over the app. Despite the glitches, most participants completed at least 80% of the daily prompts, supporting just how feasible and acceptable the EMA paradigm is in bereaved individuals utilizing prescription medication to cope with grief reactions.

Clinical Implications

Several clinical implications can be surmised from the present findings. Concerningly, no specific guidelines exist with prescription medication for the treatment of grief-related symptoms, yet 65% of the present sample endorsed using benzodiazepines with 40% reporting a prescription. This aligns with previous literature endorsing benzodiazepines as a common medication prescribed for grief-related symptoms (Shah et al., 2013). There is further evidence that individuals either increase dosage or seek prescription medication post-bereavement to cope with the grief, and the present study found that grief-related symptoms – separation and traumatic distress – are directly associated with craving these prescription medications. Craving has been identified as a key identifier for diagnosis of substance use disorders, as well as clinical outcomes for treatment (Tiffany & Wray, 2012). Providers working with recently bereaved individuals who are using prescription medications may want to further monitor use through assessment of cravings for the substance. Considering the parallels between the trait-based reward systems of bereaved individuals exhibiting pathological grief symptoms, as well as neurobiological likeness, prescription medication with high misuse potential should not be the first line of treatment for grief. Rather, providers need further psychoeducation on the differences between normative and non-normative grief reactions to make informed decisions around prescription medications. Furthermore, bereaved individuals would benefit from psychoeducation on grief processes, as well as education on active treatments for grief such as group or individual therapy.

Summary and Conclusions

Not only are prescription medications with high misuse potential prevalent in recently bereaved individuals, whether they are prescribed or not, but grief-related antecedents may

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increase intensity and frequency of cravings for these prescription medications. Grievers may

turn to prescription medications for respites from their grief, however, this may prolong the

grief process and put grievers at a higher risk for developing substance misuse behaviors.

Examining the relationship between grief and substance use is imperative to further our

understanding of the grief process, gathering information to augment prescriber guidelines,

and create preventative measures to mitigate the onset of substance use disorders.

APPENDIX A

Assessment Battery Table

Domain	Measure	Psychometrics	Administration
Screener	Phone Screen	History of bereavement, prescription medication use, and exclusion criteria	Pre-Baseline
Demographics	Demographic Form	Demographic information (e.g., gender, age, income, employment)	Baseline
Emotion Regulation	Difficulties in Emotion Regulations.	36-item self-report measuring emotion regulation.	Baseline
Experiential Avoidance	Brief Experiential Avoidance Questionnaire.	15-item measure assessing a broad range of content related to experiential avoidance	Baseline
Grief	Inventory of Complicated Grief – Revised	33- time Inventory assessing separation and traumatic distress: Subscales will be broken down and used for daily EMA	Baseline, Daily EMA
Prescription Medication Use	EMA Prescription Medication Questions	Prescription Medication questionnaire will be created to assess types and amounts of medication used	Baseline, Daily EMA
Prescription Medication Use	EMA Craving Questions	Since last data entry, how FREQUENT are your drug CRAVINGS?" on a 100-point touch point continuum, with anchors at "No Cravings" to "Very Frequent" "Since last data entry, how INTENSE are your drug CRAVINGS?" also on a 100-touch point continuum with anchors at "No Cravings" to "Very Intense"	Daily EMA
Accessibility and Feasibility	Accessibility Questionnaire	Construct questionnaire specific to study measures and tools	Last-EMA

Phone screen

1. Age: _____

2. Have you experienced the death of a close friend or loved one in the last year?

    ___ Yes ___ No

3. Date of death: _____

4. Relationship to the deceased:

    ___ Spouse ___ Partner ___ Mother ___ Father ___ Sister

    ___ Brother ___ Son ___ Daughter ___ Other:_____

5. Cause of death: _____

6. Do you currently take prescription medication?   ___ Yes ___ No

7. Do you take an antidepressant/benzodiazepine/sleep aid/pain medication?

    ___ Yes ___ No

8. How long after the death did you begin to take these medications? _____

9. Do you have a working smart phone?___ Yes ___ No

10. Have you been diagnosed with a psychotic disorder such as schizophrenia?   ___

    Yes ___ No

11. Have experienced suicidal thoughts in the month?   ___ Yes ___ No

12. Have you attempted suicide in the past three months?   ___ Yes ___ No

List of Antidepressants:

SSRIs:

| Citalopram (Celexa) | Escitalopram (Lexapro) | Fluoxetine (Prozac) |

Fluvoxamine (Luvox) Fluvoxamine CR (Luvox CR)   Paroxetine (Paxil)

Paroxetine CR (Paxil CR)   Sertraline (Zoloft)

SNRIs:

Desvenlafaxine (Pristiq)   Duloxetine (Cymbalta)   Venlafaxine (Effexor)

Venlafaxine XR (Effexor XR)   Milnacipran (Savella)   Levomilnacripan

(Fetzima)

Tricyclic (TCAS):

Amitriptyline (Elavil) Desipramine (Norpramin)   Doxepine (Sinequan)

Imipramine (Tofranil) Nortripyline (Pamelor)   Amoxapine/Clomipremine (Anafranil)

Maprotiline (Ludiomil)   Trimipramine (Surmontil)   Protriptyline

(Vivactil)

Monoamine Oxidase Inhibitors (MAOIS)

Phenelzine (Nardil)   Selegine (Emsam)   Tranylcypromine (Parnate)

Atypical Antidepressants

Bupropion (Wellbutrin)   Mirtazapine (Remeron)   Nefazodone (Serzone)

Trazodone (Desyrel/Oleptro) Vilazodone (Viibryd)   Vortioxetine (Brintellix)

List of Barbituates:

Amytral Sodium (Amobarbital)   Butisolo (Butabarbital)

Capacet, Fioricet (Butalbital) Mephobartital (Mephobartital)

Brevital Sodium (Methohexital)   Nembutal (Pentobarbital)

Luminal (Phenobarbital)   Mysoline (Primidone)

Seconyl (Secobarbital)   Pentothal (Thiopental)

List of Benzodiazepines:

Diazepam (Valium)   Clorazepate (Tranxene)   Oxaxepam (Serax)   Lorazepam

(Ativan)   Alprazolam (Xanax)   Clonazepam (Klonopin)

Clorazepate (Tranxene)   Midazolam (Versed)   Triazolam (Halcion)

Estazolam (Prosom)   Temazepam (Restoril)Chlordiazepoxide (Librium)

Flurazepam (Dalmane)   Clobazam (Onfil)

List of Sleep Medications:

Zolpidem (Ambien)   Zaleplon (Sonata)   Eszopiclone (Lunesta)

Opioids: Brand names, generic names & street names

Brand Names (Generic Names)

Abstral (fentanyl)   Actiq (fentanyl)   Avinza (morphine sulfate)

Butrans (buprenorphine transdermal system)   Demerol (meperidine)

Dilaudid (hydromorphone]   Dolophine (methadone hydrochloride tablets)

Duragesic (fentanyl transdermal system)   Fentora (fentanyl)

Hysingla (hydrocodone)   Methadose (methadone)   Morphabond (morphine)

Nucynta ER (tapentadol extended-release oral tablets)   Onsolis (fentanyl)

Oramorph (morphine) Oxaydo (oxycodone) Roxanol-T (morphine)

Sublimaze (fentanyl)   Xtampza ER (oxycodone)   Zohydro ER (hydrocodone)

Combination Opioid Prescriptions

Anexsia (hydrocodone containing acetaminophen)

 Co-Gesic (hydrocodone containing acetaminophen)

Embeda (morphine sulfate and naltrexone extended-release capsules)

Exalgo (hydromorphone hydrochloride extended-release tablets)

Hycet (hydrocodone containing acetaminophen)

Hycodan (hydrocodone containing homatropine)

Hydromet (hydrocodone containing homatropine)

Ibudone (hydrocodone containing ibuprofen)

Kadian (morphine sulfate extended-release tablets)

Liquicet (hydrocodone containing acetaminophen)

Lorcet (hydrocodone containing acetaminophen)

Lorcet Plus (hydrocodone containing acetaminophen)

Lortab (hydrocodone containing acetaminophen)

Maxidone (hydrocodone containing acetaminophen)

MS Contin (morphine sulfate controlled-release tablets)

Norco (hydrocodone containing acetaminophen)

Opana ER (oxymorphone hydrochloride extended-release tablets)

OxyContin (oxycodone hydrochloride controlled-release tablets)

Oxycet (oxycodone containing acetaminophen)

Palladone (hydromorphone hydrochloride extended-release capsules)

Percocet (oxycodone containing acetaminophen)

Percodan (oxycodone containing aspirin)

Reprexain (hydrocodone containing ibuprofen)

Rezira (hydrocodone containing pseudoephedrine)

Roxicet (oxycodone containing acetaminophen)

Targiniq ER (oxycodone containing naloxone)

TussiCaps (hydrocodone containing chlorpheniramine)

Tussionex (hydrocodone containing chlorpheniramine)

Tuzistra XR (codeine containing chlorpheniramine)

Tylenol #3 and #4 (codeine containing acetaminophen)

Vicodin (hydrocodone containing acetaminophen)

[Combination Opioid Prescriptions continued]

Vicodin ES (hydrocodone containing acetaminophen)

Vicodin HP (hydrocodone containing acetaminophen)

Vicoprofen (hydrocodone containing ibuprofen)

Vituz (hydrocodone containing chlorpheniramine)

Xartemis XR (oxycodone containing acetaminophen)

Xodol (hydrocodone containing acetaminophen)

Zolvit (hydrocodone containing acetaminophen)

Zutripro (hydrocodone containing chlorpheniramine and pseudoephedrine)

Zydone (hydrocodone containing acetaminophen)

Generic Names

Fentanyl (fentanyl extended-release transdermal system)

Methadone hydrochloride (methadone hydrochloride tablets, methadone hydrochloride oral solution)

Morphine sulfate (morphine sulfate extended-release capsules, morphine sulfate extended-release tablets)

Oxymorphone hydrochloride (oxymorphone hydrochloride extended-release tablets)

Opioids pulled from: https://www.asam.org/docs/default-source/education-docs/opioid-names_generic-brand-street_it-matttrs_8-28-17.pdf?sfvrsn=7b0640c2_2

APPENDIX C
Demographics

Demographics

1. How do you describe yourself? (Mark all that apply)
   - ☐ Female
   - ☐ Male
   - ☐ Non-binary
   - ☐ Transgender
   - ☐ Cisgender
   - ☐ Genderqueer
   - ☐ Agender
   - ☐ A gender not listed _____

2. Please enter your age in years: _____

3. With which racial and ethnic group(s) do you identify? (Mark all that apply)

   - ☐ American Indian or Alaskan Native
   - ☐ Asian
   - ☐ Black or African American
   - ☐ Hispanic, Latino, or Spanish origin
   - ☐ Middle Eastern or North African
   - ☐ Native Hawaiian or Other Pacific Islander
   - ☐ White
   - ☐ Another race or ethnicity not listed above _____

4. Please print your specific ethnicities in the space below. Examples of ethnicities include (for example): German, Korean, Midwesterner (American), Mexican American, Navajo Nation, Samoan, Puerto Rican, Southerner (American), Chinese, etc.
   Note, you may report more than one group.
   Ethnicity(s) _____

5. What is the highest level of education that you have completed?
   - ☐ Did not finish high school
   - ☐ Graduated from high school
   - ☐ Attended college but did not complete a degree
   - ☐ Completed an Associate's degree
   - ☐ Completed a Bachelor's degree
   - ☐ Completed a Master's degree
   - ☐ Completed a Doctoral or Professional degree (such as a Medical or Law degree)

6. Would you describe your household:
   ☐ Low Income
   ☐ Lower-Middle Income
   ☐ Middle Income
   ☐ Upper-Middle Income
   ☐ High Income
   ☐ I prefer not to answer

7. Do you have a long-lasting or chronic condition (physical, visual, auditory, cognitive or mental, emotional, or other) that substantially limits one or more of your major life activities (your ability to see, hear, or speak; to learn, remember, or concentrate)?
   ☐ Yes
   ☐ No
   ☐ I prefer not to answer
   If yes, please indicate the terms that best describe the condition(s) you experience:
   ☐ Please specify:_____
   ☐ I prefer not to answer

8. Have you been diagnosed with any disability or impairment?
   ☐ Yes
   ☐ No
   ☐ I prefer not to answer
   If yes, which of the following have been diagnosed? (Mark all that apply)
   ☐ A sensory impairment (vision or hearing)
   ☐ A mobility impairment
   ☐ A learning disability (e.g., ADHD, dyslexia)
   ☐ A mental health disorder
   ☐ A disability or impairment not listed above

APPENDIX D
Inventory Of Complicated Grief – Revised

Please mark the box next to the answer that best describes how you have been feeling over the past <u>month</u>. The blanks refer to the deceased person over whom you are grieving.

Almost never	= less than once a month
Rarely	= once a month or more, less than once a week
Sometimes	= once a week or more, less than once a day
Often	= once every day
Always	= several times every day

1. The death of _____ feels overwhelming or devastating.

Almost never ☐1
Rarely ☐2
Sometimes ☐3
Often ☐4
Always ☐5

2. I think about _____ so much that it can be hard for me to do the things I normally do.

Almost never ☐1
Rarely ☐2
Sometimes ☐3
Often ☐4
Always ☐5

3. Memories of _____ _ upset me.

Almost never ☐1
Rarely ☐2
Sometimes ☐3
Often ☐4
Always ☐5

4. I feel that I have trouble accepting the death.

Almost never ☐1
Rarely ☐2
Sometimes ☐3
Often ☐4
Always ☐5

5. I feel myself longing and yearning for _____.

Almost never ☐1
Rarely ☐2

Sometimes ☐3
Often ☐4
Always ☐5

6. I feel drawn to places and things associated with _____.

Almost never ☐1
Rarely ☐2
Sometimes ☐3
Often ☐4
Always ☐5

7. I can't help feeling angry about _____'s death.

Almost never ☐1
Rarely ☐2
Sometimes ☐3
Often ☐4
Always ☐5

8. I feel disbelief over _____'s death.

Almost never ☐1
Rarely ☐2
Sometimes ☐3
Often ☐4
Always ☐5

9. I feel stunned, dazed, or shocked over _____'s death.

Almost never ☐1
Rarely ☐2
Sometimes ☐3
Often ☐4
Always ☐5

10. Ever since _____ died it is hard for me to trust people.

No difficulty trusting others ☐1
A slight sense of difficulty ☐2
Some sense ☐3
A marked sense ☐4
An overwhelming sense ☐5

11. Ever since _____ died I feel like I have lost the ability to care about other people or I feel distant from people I care about.

No difficulty feeling close or connected to others $\square_1$

A slight sense of detachment $\square_2$

Some sense $\square_3$

A marked sense $\square_4$

An overwhelming sense $\square_5$

12. I have pain in the same area of my body, some of the same symptoms, or have assumed some of the behaviors or characteristics of _____.

Almost never $\square_1$

Rarely $\square_2$

Sometimes $\square_3$

Often $\square_4$

Always $\square_5$

13. I go out of my way to avoid reminders that _____ is gone.

Almost never $\square_1$

Rarely $\square_2$

Sometimes $\square_3$

Often $\square_4$

Always $\square_5$

14. I feel that life is empty or meaningless without _____.

No sense of emptiness or meaninglessness $\square_1$

A slight sense of emptiness or meaninglessness $\square_2$

Some sense $\square_3$

A marked sense $\square_4$

An overwhelming sense $\square_5$

15. I hear the voice of _____ speak to me.

Almost never $\square_1$

Rarely $\square_2$

Sometimes $\square_3$

Often $\square_4$

Always $\square_5$

16. I see _____ stand before me.

Almost never $\square_1$

Rarely $\square_2$

Sometimes $\square_3$

65

Often   □4
Always   □5

17. I feel like I have become numb since the death of _____.

No sense of numbness   □1
A slight sense of numbness   □2
Some sense   □3
A marked sense   □4
An overwhelming sense   □5

18. I feel that it is unfair that I should live when _____ died.

No sense of guilt over surviving the deceased   □1
A slight sense of guilt   □2
Some sense   □3
A marked sense   □4
An overwhelming sense   □5

19. I am bitter over _____ 's death.

No sense of bitterness   □1
A slight sense of bitterness   □2
Some sense   □3
A marked sense   □4
An overwhelming sense   □5

20. I feel envious of others who have not lost someone close.

Almost never   □1
Rarely   □2
Sometimes   □3
Often   □4
Always   □5

21. I feel like the future holds no meaning or purpose without _____.

No sense that the future holds no purpose   □1
A slight sense that the future holds no purpose   □2
Some sense   □3
A marked sense   □4
An overwhelming sense   □5

22. I feel lonely ever since _____ died.

Almost never $\square_1$
Rarely $\square_2$
Sometimes $\square_3$
Often $\square_4$
Always $\square_5$

23. I feel unable to imagine life being fulfilling without _____.

Almost never $\square_1$
Rarely $\square_2$
Sometimes $\square_3$
Often $\square_4$
Always $\square_5$

24. I feel that a part of myself died along with _____.

Almost never $\square_1$
Rarely $\square_2$
Sometimes $\square_3$
Often $\square_4$
Always $\square_5$

25. I feel that the death has changed my view of the world.

No sense of a changed world view $\square_1$
A slight sense of a changed world view $\square_2$
Some sense $\square_3$
A marked sense $\square_4$
An overwhelming sense $\square_5$

26. I have lost my sense of security or safety since the death of _____.

No change in feelings of security $\square_1$
A slight sense of insecurity $\square_2$
Some sense $\square_3$
A marked sense $\square_4$
An overwhelming sense $\square_5$

27. I have lost my sense of control since the death of _____.

No change in feelings of being in control $\square_1$

A slight sense of being out of control $\square_2$

Some sense of being out of control $\square_3$

A marked sense $\square_4$

An overwhelming sense $\square_5$

28. I believe that my grief has resulted in impairment in my social, occupational or other areas of functioning.

No functional impairment $\square_1$

Slight functional impairment $\square_2$

Some functional impairment $\square_3$

Marked functional impairment $\square_4$

Completely functionally impaired $\square_5$

29. I have felt on edge, jumpy, or easily startled since the death.

No change in feelings of being on edge $\square_1$

A slight sense of feeling on edge $\square_2$

Some sense $\square_3$

A marked sense $\square_4$

An overwhelming sense $\square_5$

30. Since the death, my sleep has been...

Not disturbed $\square_1$

Slightly disturbed $\square_2$

Moderately disturbed $\square_3$

Very disturbed $\square_4$

Extremely disturbed $\square_5$

APPENDIX E

EMA Prescription Medication Use Questions

1. Since last data entry, did you take _____*?*

No   Yes

2. How much _____ did you take?

_____(mg)

EMA Craving Questions

3. Since last data entry, how FREQUENT are your medication cravings?

No Cravings   Very Frequent
   0 --------------------------------50--100

4. Since last data entry, how INTENSE are your drug CRAVINGS?

No Cravings   Very Intense
   0 --------------------------------50--100

APPENDIX G

Difficulties In Emotion Regulation Scale

Please indicate how often the following 36 statements apply to you by selecting the appropriate number on a scale of 1 – 5.

1	2	3	4	5
Almost never	Sometimes	About half the time	Most of the time	Almost always
(1-10%)	(11-35%)	(36-65%)	(66-90%)	(91-100%)

1. I am clear about my feelings.
2. I pay attention to how I feel.
3. I experience my emotions as overwhelming and out of control.
4. I have no idea how I am feeling.
5. I have difficulty making sense out of my feelings.
6. I am attentive to my feelings.
7. I know exactly how I am feeling.
8. I care about what I am feeling.
9. I am confused about how I feel.
10. When I'm upset, I acknowledge my emotions.
11. When I'm upset, I become angry with myself for feeling that way.
12. When I'm upset, I become embarrassed for feeling that way.
13. When I'm upset, I have difficulty getting work done.
14. When I'm upset, I become out of control.
15. When I'm upset, I believe that I will remain that way for a long time.
16. When I'm upset, I believe that I will end up feeling very depressed
17. When I'm upset, I believe that my feelings are valid and important.
18. When I'm upset, I have difficulty focusing on other things.
19. When I'm upset, I feel out of control.
20. When I'm upset, I can still get things done.
21. When I'm upset, I feel ashamed with myself for feeling that way.
22. When I'm upset, I know that I can find a way to eventually feel better.
23. When I'm upset, I feel like I am weak.
24. When I'm upset, I feel like I can remain in control of my behaviors.
25. When I'm upset, I feel guilty for feeling that way.
26. When I'm upset, I have difficulty concentrating.
27. When I'm upset, I have difficulty controlling my behaviors.
28. When I'm upset, I believe there is nothing I can do to make myself feel better.
29. When I'm upset, I become irritated with myself for feeling that way.
30. When I'm upset, I start to feel very bad about myself.
31. When I'm upset, I believe that wallowing in it is all I can do.
32. When I'm upset, I lose control over my behaviors.
33. When I'm upset, I have difficulty thinking about anything else.
34. When I'm upset, I take time to figure out what I'm really feeling.
35. When I'm upset, it takes me a long time to feel better.
36. When I'm upset, my emotions feel overwhelming.

Brief Experiential Avoidance Questionnaire

Please indicate the event to which you agree or disagree with each of the following statements.

1   Strong Disagree
2   Moderately Disagree
3   Slightly Disagree
4   Slightly Agree
5   Moderately Agree
6   Strongly Agree

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

APPENDIX I

Acceptability Questionnaire

1. Please rate how relevant the daily reports were on your grief experience.

<table>
<tr><td>0</td><td>1</td><td>2</td><td>3</td></tr>
<tr><td>Not Relevant</td><td></td><td></td><td>Very Relevant</td></tr>
</table>

2. Please rate how burdensome completing these daily reports were.

<table>
<tr><td>0</td><td>1</td><td>2</td><td>3</td></tr>
<tr><td>Not Burdensome</td><td></td><td></td><td>Very Burdensome</td></tr>
</table>

3. Please rate how user friendly was it to access and complete each survey?

<table>
<tr><td>0</td><td>1</td><td>2</td><td>3</td></tr>
<tr><td>Not Friendly</td><td></td><td></td><td>Very Friendly</td></tr>
</table>

4. Please rate how helpful the research team was in addressing any questions or problems in a timely manner.

<table>
<tr><td>0</td><td>1</td><td>2</td><td>3</td></tr>
<tr><td>Not Helpful</td><td></td><td></td><td>Very Helpful</td></tr>
</table>

5. Would you recommend this study to another person who takes medications to help cope with grief?

<table>
<tr><td>0</td><td>1</td></tr>
<tr><td>No</td><td>Yes</td></tr>
</table>

6. Please add any comments in the section below that would improve this study:

_____

_____

_____

_____

_____

_____

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