

**Are Unexpectedness and Cause of Death Associated with Prolonged Grief Above and
Beyond Acute Grief Symptoms?**

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Abstract

Introduction: The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR) recently included Prolonged Grief Disorder (PGD) as an independent mental disorder, identified by the presence of either intense yearning or preoccupation with the deceased, along with one or more of ten potential accompanying symptoms. Possible risk factors and determinants that are supposedly causing certain people to be more prone to exhibit prolonged grief symptoms are increasingly being investigated. The current study assesses whether the unexpectedness and cause of death are significant predictors of prolonged grief symptoms one year after a loss while controlling for acute grief symptoms.

Method: In a sample of 65 bereaved people, two telephone interviews were conducted: one at 3-6 months after the loss and one year after the first interview. Background and loss-related characteristics were examined at the first interview, while acute and prolonged grief symptoms were measured with the Traumatic Grief Inventory-Clinician Administered (TGI-CA) at both interviews.

Results: A multiple linear regression analysis was performed to investigate the relationship between the unexpectedness and cause of death in relation to prolonged grief symptoms. Results of the analysis indicated that acute grief symptoms are significant predictors of prolonged grief symptoms one year after a loss. However, the unexpectedness of death and cause of death were not found to be significant predictors of prolonged grief symptoms.

Discussion: This study has underscored the significance of acute grief symptoms as risk factors for prolonged grief symptoms, showing the worth of early and effective interventions that target the immediate grief responses after a loss. Further research is needed to examine the role of unexpectedness and cause of death in grief progression to improve the understanding of grief reactions and ensure timely and tailored support.

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Introduction

It goes without a doubt that nearly all individuals deal with the death of their loved ones at some point in their lives. For instance, college students who were surveyed reported that one-third of them had experienced the loss of a family member or friend within the past year (Balk et al., 2010), while among those aged 65 and over, 45% of women and 15% of men are widowed (Stroebe et al., 2007). Bereavement is defined as the experience of losing someone, is often accompanied by a time of agony and misery, and is classified as one of the most exacting life events (Holmes & Rahe, 1967; Thimm et al., 2020). Bereavement is characterized by grief, referring to the process and range of emotions that an individual goes through when experiencing such a loss. Common manifestations of grief, according to the American Psychological Association (APA) Dictionary of Psychology, include physiological discomfort, separation anxiety, disorientation, longing, worries about the future, and dwelling on the past (APA, 2024).

The way individuals express and navigate through their grief is profoundly personal, and the exhibition of grieving symptoms occurs in highly diverse and individualized patterns. While some might get over their losses relatively quickly, other individuals might suffer from bereavement more intensely and for more extended periods (Bonanno & Kaltman, 2001; Pop-Jordanova, 2021; Zisook & Shear, 2009). Trajectory models of grieving symptoms up to three years post-loss reveal that many bereaved individuals maintain stable, minimal levels of grief symptoms (Szuhany et al., 2021). Emotions such as sadness, shock, and disbelief are examples of acute grieving symptoms that usually manifest right after a major loss. In addition, individuals suffering from acute grief may be overwhelmed by waves of sorrow and longing for the presence of their loved one (Love, 2007). Examples of physical manifestations of acute grief are commonly fatigue, difficulty sleeping, and loss of appetite during this phase (Utz et al., 2011). Finally, acute grieving also frequently results in cognitive difficulties, such

as trouble focusing, memory loss, and preoccupation with thoughts of the deceased (Bonanno & Kaltman, 2001). Although the acute symptoms of grief can cause great suffering, they are a crucial part of the grieving journey that speaks to the deep connection and importance of this connection with the deceased.

However, trajectory models also showed patterns beyond acute grief, where individuals may have delayed onset, starting with minimal symptoms and escalating after six months (Szuhany et al., 2021). The ‘chronic grievers’ in these trajectory studies undergo more intense grief and might experience severe and enduring mental and physical health challenges. For example, enduring grief symptoms often affect negative health behaviors and emotional distress, which can increase the risk of heart disease and depression (Fagundes & Wu, 2020). Consequently, grief resolution is a matter of concern not only for preventative care but also within the realm of clinical practice.

Defining Prolonged Grief and Prolonged Grief Disorder

A non-pathological grieving process is characterized by a shift from acute grief to an integration of the loss into their life within one year from the death, implying a non-pathological condition that does not require specific therapeutic interventions. Whenever the bereaved is not able to reach this integrated phase, they might experience prolonged grief, associated with significant distress and disturbance of daily functioning (De Stefano et al., 2020). Approximately 10-15% of individuals are believed to undergo a more complex grieving process, leading to potential repercussions on their well-being, as bereavement has demonstrated associations with elevated mortality risks and increased utilization of medical services in comparison to those without bereavement (Kersting et al., 2011; Stroebe et al., 2007).

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR), recently added Prolonged Grief Disorder (PGD) to the chapter of

trauma and stressor-related disorders as an independent mental disorder, identified by the presence of either intense yearning or preoccupation with the deceased, along with one or more of ten potential accompanying symptoms (Boelen & Lenferink, 2020; Killikelly & Maercker, 2017; Prigerson et al., 2006; 2009; 2021; Tsai et al., 2018; see Appendix A for PGD criteria). Furthermore, the diagnosis of PGD according to the DSM-5-TR requires that the death occurred at least 12 months prior, with symptoms persisting for at least one month, causing significant distress or impairment, and surpassing cultural and contextual expectations (Boelen et al., 2020). PGD has a prevalence rate of approximately 9.8% among adults experiencing bereavement following a non-violent death (Lundorff et al., 2017). Hence, experiencing PGD can be considered a relatively prevalent phenomenon.

Predictability of PGD

In recent years, researchers have been increasingly investigating possible risk factors and determinants that are supposedly causing certain people to be more prone to exhibit prolonged grief symptoms. For example, the literature review of Buur et al. (2023) pointed out a total of 19 risk factors from four different categories (specifically, bereavement and loss-related risk factors, inter- / non-personal risk factors, intrapersonal risk factors, and appraisal and coping), to determine the chances of exhibiting prolonged grief symptoms in the general bereaved population. Among those determinants were, for instance, type of loss, social support, gender, and attachment style. Another study by Boelen and Lenferink (2020) investigated prolonged grief symptoms among recently bereaved people within six months after a loss. They determined that being younger, being recently bereaved, experiencing the death of a partner or child, and facing unnatural losses were examples of predictors of membership in a high symptom category. Likewise, Lobb et al. (2010) identified predictors of complicated grief (CG). While PGD has more formalized diagnostic criteria and recognition in diagnostic manuals, CG is a broader term used in clinical practice and research to describe

similar conditions to PGD, both characterized by severe and persistent grief (Maciejewski et al., 2016). Findings of Lobb et al. (2010) suggested that risk factors for CG included prior losses, trauma exposure, a history of psychiatric issues, attachment style, and the type of relationship with the deceased. They also discovered that variables such as the cause of death, the extent of preparation for the death, and the level of distress experienced at the time of death were notable indicators.

However, among the strongest predictors of prolonged grief symptoms are the acute grief symptoms exhibited by a bereaved person (Eisma et al., 2021). As previously stated, acute grief is the intense, immediate response to a loss, and its' severity may indicate the likelihood of developing PGD if the intense symptoms do not diminish over time. People who meet PGD criteria within four months post-loss have been shown to be 32 times more likely to meet criteria for probable PGD one year later (Boelen & Lenferink, 2021). Reitsma et al. (2023) have similarly underlined the impact of acute grief, demonstrating that timely support through self-guided online treatment for individuals in the early stages of disturbed grief can significantly lower their disturbed grief levels after treatment.

Unexpectedness and Cause of Death

The unexpectedness of a loss plays a fundamental role in shaping the manifestation of grief symptoms and forms a profound risk factor for exhibiting prolonged grief symptoms. On the one hand, when the death is sudden or unexpected, it often leaves the bereaved in shock and disbelief, making it challenging to process the reality of the loss and disrupting the natural progression of prospected grief (Clements et al., 2004; Reed, 1993). On the other hand, a known and prolonged illness could give time for the person to emotionally prepare (Hebert et al., 2009; Sanders, 1983). Yet, it can also cause immediate grief in addition to depression and anxiety, as people watch their loved one's health deteriorate (Schmidt & Azoulay, 2012). In each scenario, the level of unexpectedness of the death contributes to the complexity and

intensity of grief symptoms, thereby influencing individuals' ability to navigate the mourning process.

Likewise, the cause of death can have a major influence as a risk factor in the onset of prolonged grief symptoms. Understanding the circumstances surrounding the death can significantly impact the grieving process, as it may influence feelings of guilt, anger, confusion, or fears, which might subsequently intensify grief symptoms (Armour, 2007; Nader, 2001). For example, family members of a person who passed because of suicide experience heightened levels of shame (Levi-Belz & Blank, 2023), whereas violent deaths cause family members to deal with retaliation and fears (Rynearson et al., 2012). Moreover, traumatic causes of death, in general, show a high comorbidity with PTSD and are associated with poor recovery in comparison to non-violent deaths (Green, 2000).

The studies in the previous section have underscored the importance of factors related to loss in increasing the risk for individuals to exhibit symptoms of prolonged grief. Considering the nature of the losses described, such as suicide, violent deaths, and traumatic deaths, it could be argued that unnatural deaths are an overarching key factor that makes individuals susceptible to prolonged grief symptoms. Similarly, the lack of preparation for the death seems to indicate that unexpected deaths are an underlying factor in affecting prolonged grief (Buur et al., 2023; Boelen & Lenferink, 2019; Lobb et al., 2010). Testing the significance of the unexpectedness of death and cause of death as risk factors could help identify people at risk based on their loss-related characteristics.

Understanding the risk factors beyond acute grief for exhibiting prolonged grief symptoms is pivotal to successful treatment, and identifying those at higher risk allows for targeted intervention and timely support that can potentially prevent complications. Particularly individuals that have experienced unexpected deaths and unnatural deaths have

the potential to develop symptoms that go beyond grief, such as higher levels of depression, higher levels of maladaptive grief, and posttraumatic stress symptoms (Kaplow et al., 2014). Individuals who are consequently at risk for developing PGD are especially in need of effective treatment, as sufferers of the disorder are often coping with a heightened risk of depression and suicidality, as well as deteriorating health due to increased risk of heart disease, hypertension, cancer, and alterations in eating habits (Boelen & Prigerson, 2007; Latham & Prigerson, 2004; Rosner et al., 2014; Stroebe et al., 2007).

Current Study

This research aims to investigate whether and to what extent the unexpectedness and cause of death predict prolonged grief above and beyond acute grief symptoms. Based on the previous findings, it is expected that unexpected deaths and unnatural deaths will lead to more prolonged grief symptoms. Therefore, I hypothesize that unexpected deaths and unnatural deaths (compared to natural deaths) are positively associated with prolonged grief symptoms 12 months after the loss, after controlling for the acute prolonged grief symptoms 3-6 months after the loss.

Method

Design and Procedure

This study is part of a larger study which aims to understand how and to what extent acute grief symptoms are predictive of prolonged grief symptoms. Data collection for the project started in February 2023. The current study included a part of the data obtained within the larger study and was collected until May 2024.

The larger study gathered data gathered through a Dutch website (<https://rouwbehandeling.nl/>), which provides the public with grief and bereavement care resources. On this website, grieving individuals use the Traumatic Grief Inventory – Self

Report Plus (TGI-SR+) as a self-monitoring tool. After filling out this questionnaire, people are asked whether they want to participate in future research about grief.

The study is a randomized controlled trial (RCT) and allocates participants to either an Experience Sample Methodology (ESM) condition or a waitlist condition (see Appendix B for the study design). A trained interviewer approaches participants who agree to schedule a telephone interview (T1 interview) at the start of their participation. The ESM condition starts with ESM directly after the T1 interview. Participants in the waitlist condition first wait 14 days after the T1 interview and are additionally interviewed following the two-week waiting period immediately preceding the start of the ESM phase (T1b interview). The additional interview contains questions similar to those in interview T1, except for loss-related and background characteristics. Throughout the ESM phase, individuals are signaled with five beeps daily for a period of 14 consecutive days. Both conditions end the ESM phase with another interview (T2 interview).

Participants complete a follow-up interview (T3 interview) 12 months after the loss. Trained interviewers (bachelor- and master-level clinical psychology students) contact the participants and conduct the T3 interview. The T3 interview contains the same measures as previous interviews, except for the questions regarding loss-related and background characteristics. Participants are reminded one day before the interview takes place. The larger project is approved by the University of Twente ethics committee (ID:221328). The current study only uses data obtained at T1 and T3 of the larger study.

Participants

Eligible participants are Dutch-speaking adults who have access to a smartphone and have experienced the loss of a spouse, family member, or friend at least three and at most six months before participation. Individuals are excluded if they do not have access to a smartphone, exhibit suicidal tendencies, or have previously received a diagnosis of a

psychotic disorder. Participants do not receive any form of financial compensation. Data collection took place from February 2023 till May 2024.

Measures

Background and Loss-Related Characteristics

Multiple questions are posed at T1 related to the backgrounds and circumstances of loss experienced by the grieving participants. Among the background characteristics are gender), participant age, age of the deceased, home country, time since the loss, and kinship to the deceased.

T1 also regards the terms of loss circumstances and asks participants about the level of unexpectedness regarding the death (1 = *completely expected* to 5 = *completely unexpected*) and the cause of death (0 = *physical illness*, 1 = *accident*, 2 = *suicide*, 3 = *homicide/manslaughter*, 4 = *other, namely*). For the ‘cause of death’, physical illness is coded as ‘natural death’ (0), while all other causes are coded as ‘unnatural death’ (1).

Prolonged Grief Symptoms (TGI-CA)

Prolonged grief symptoms in the early grieving stage are measured with the Traumatic Grief Inventory-Clinician Administered (TGI-CA) three to six months after the loss. However, to maintain clarity and readability, this research will proceed to refer to those early-stage prolonged grief symptoms as ‘acute grief symptoms’. The TGI-CA is based on the self-report measure Traumatic Grief Inventory – Self Report Plus (TGI-SR+), for which two changes are made to make the questionnaire suitable for interview use. First, items of the TGI-SR+ are phrased as questions instead of statements. Second, the wording of ‘deceased loved one’ in the introduction and items are rephrased to either the first name (e.g. ‘Sarah’) or the relationship (e.g. ‘your sister’) of the deceased person. Participants are asked to indicate the frequency with which they experienced each symptom over the previous month, using 22 items on a 5-point Likert scale (1 = *never*, 2 = *seldom*, 3 = *sometimes*, 4 = *often*, 5 = *always*).

An example item is: ‘*In the past month, did you feel bitterness or anger related to the death of your sister?*’ (see Appendix C for the TGI-CA items). Lenferink et al. (2023) have indicated an acceptable reliability and validity of the TGI-CA to evaluate the severity of prolonged grief symptoms.

Participants are similarly interviewed with the TGI-CA 12 months after the loss to measure the level of prolonged grief symptoms. The same calculation was used for both interviews to obtain the scores for the TGI-CA, where the scores represented levels of acute grief symptoms at T1 and prolonged grief symptoms at T3. To fulfil the criteria for PGD according to DSM-5-TR, individuals must endorse at least one of the two symptoms outlined in Criterion B, at least three out of the eight symptoms specified in Criterion C, and meet the criterion for functional impairment (APA, 2013). A symptom is considered endorsed when rated with a score of 4 or 5. The scale is considered highly reliable for both the T1 interview (Cronbach’s $\alpha = .77$) and the T3 interview (Cronbach’s $\alpha = .83$).

Data Analysis

To test our hypothesis, data was analyzed using R version 2024.04.1+748 (Posit Software, 2024). The R packages used for this study are listed in Appendix D. The age of the participants was created from their birth date until the date of T1, as well as the time since their loss, which was computed from the date of loss until the date of T1. Subsequently, a dummy variable was created for ‘cause of death’ ($0 = natural$, $1 = unnatural$).

First, we investigated the study variables’ background, loss characteristics, and descriptives. Total scores for each loss-related category for the TGI-CA were created for both the T1 and T3 interviews by summing items representing DSM-5-TR PGD criteria (i.e., item 1, 3, 6, 9, 10, 11, 18, 19, 21, and the highest answer option for item 2 or 8).

Second, parametric assumptions were checked by determining the normal distribution, skewness, and kurtosis through a Shapiro-Wilk test. The homogeneity of variance was

checked for the independent variables by performing Levene's test. Moreover, the assumption of multicollinearity was tested by computing the independent variable's tolerance and variance inflation factor (VIF) values.

Pearson correlations between unexpectedness of death and acute grief symptoms at T1 and prolonged grief symptoms at T3 were checked. A two-sample T-test was performed to compare the means of grief symptoms for each category of cause of death.

Finally, a multiple linear regression analysis was conducted to test the hypothesis. Unexpectedness of death and cause of death were included as independent variables, and prolonged grief symptoms at T3 as the dependent variable, while controlling for acute grief symptoms at T1.

Results

Descriptive Statistics

Background and Loss-Related Characteristics

A total of 65 people participated in this study. Table 4 summarizes the background and loss-related characteristics of the participants. Most participants were female, and their home country was primarily The Netherlands. The sample consisted of solely Dutch-speaking participants. The ages of the participants ranged between 27 and 84 years old. The age of the deceased ranged from 0 to 90 years old. In approximately half of the cases, the people lost their partner. Participants were eligible to participate in this study if they experienced a loss 3-6 months before the T1 interview. However, due to the availability of the participants and the research team, five participants were contacted shortly before and 20 participants shortly after this intended range. Therefore, the time since loss at T1 varied from 2.4 to 7.4 months.

Table 4

Background and Loss-Related Characteristics

Characteristic	Total Sample ($N = 65$)
----------------	---------------------------

Gender, <i>N</i> (%)	
Female	45 (69.23)
Male	19 (29.23)
Other	1 (1.54)
Age Participant (in years), <i>M</i> (<i>SD</i>)	56 (11.98)
Home Country, <i>N</i> (%)	
The Netherlands	61 (93.85)
Germany	3 (4.62)
Belgium	1 (1.54)
Age Deceased (in years), <i>M</i> (<i>SD</i>)	62.12 (19.47)
Kinship, <i>N</i> (%)	
Partner	35 (53.85)
Parent	19 (29.23)
Child	6 (9.23)
Other	2 (3.08)
Sibling	1 (1.54)
Grandchild	1 (1.54)
Friend	1 (1.54)
Time Since loss (in months), <i>M</i> (<i>SD</i>)	5.18 (1.21)
Unexpectedness, <i>M</i> (<i>SD</i>)	3.17 (1.61)
Cause of Death, <i>N</i> (%)	
Natural Death	50 (77)
Unnatural Death	15 (23.07)
Prolonged Grief Symptoms, <i>M</i> (<i>SD</i>)	
T1 Interview	29.2 (6.5)
T3 Interview	24.7 (7.0)

Note. Unexpectedness was measured on a scale from 1 (*completely expected*) to 5 (*completely unexpected*). Prolonged Grief Symptoms indicate the average total scores for the TGI-CA.

Unexpectedness of Death, Cause of Death, and Prolonged Grief Symptoms

Most participants indicated that they perceived their loss to be ‘quite unexpected’. Approximately three out of four experienced the natural death of a loved one, while accidents and suicides were the most common forms of unnatural deaths. Detailed average levels of prolonged grief symptoms for each loss-related category at T1 and T3 are presented in Table

5, located in Appendix E. At the T1 interview, nine out of 65 participants (13.85%) met the criteria for probable PGD according to the diagnostic scoring rule for DSM-5-TR. By the T3 interview, three out of 65 participants (4.62%) met the criteria for PGD.

Parametric Assumptions

The normality of variance for the TGI-CA test scores at T1 ($W = 0.99$) and T3 ($W = 0.99$) was assessed using the Shapiro-Wilk test. Results indicated no issues with skewness (-0.09) or kurtosis (2.67) at T1 and no issues with skewness (0.26) or kurtosis (2.60) at T3.

The homogeneity of variance for the independent variables was evaluated using Levene's test. The results suggested no violations of homogeneity for the independent variable of the unexpectedness of death at T1 ($F = 2.25, p = .07$) and at T3 ($F = 0.77, p = .30$). Similarly, homogeneity of variance was maintained for the independent variable of the cause of death at T1 ($F = 1.00, p = 1.00$) and T3 ($F = 0.77, p = .38$).

Additionally, the multicollinearity assumption was tested by examining the Pearson correlations between the variables. Final tests were performed to check for the assumption of collinearity and indicated that multicollinearity was not a concern (unexpectedness of death, tolerance = .91, VIF = 1.02; cause of death, tolerance = .98, VIF = 1.02).

Inferential Statistics

As shown in Table 6, all correlations were below 0.80, indicating that none of the variables were highly correlated (Cohen, 1988). Moreover, a two-sample t-Test was performed to compare acute and prolonged grief symptoms for natural and unnatural deaths. There was not a significant difference in acute grief symptoms between natural deaths ($M = 29.02, SD = 6.54$) and unnatural deaths ($M = 29.64, SD = 6.43$); $t(23) = -0.306, p = .762$. Similarly, no significant difference was found in prolonged grief symptoms between natural deaths ($M = 24.54, SD = 7.26$) and unnatural deaths ($M = 25.27, SD = 6.22$); $t(27) = -0.381, p = .706$.

Table 6*Correlations Between Study Variables*

	1	2
1. Unexpectedness of Death		
2. Acute Grief Symptoms	.28*	
3. Prolonged Grief Symptoms	.09	.60**

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

Hypothesis Testing

Results of the multiple linear regression analysis are summarized in Table 7. The analysis indicated that acute grief symptoms significantly predict prolonged grief symptoms. However, the unexpectedness of death and cause of death were not significantly associated with prolonged grief symptoms. The overall model accounted for a significant part of the variance in prolonged grief symptoms, $F(3, 61) = 11.26, p < .001$, with an R^2 of .32. This indicates that 32% of the variance in prolonged grief symptoms can be explained by the included predictors of the model.

Table 7*Multiple Linear Regression Results*

	<i>B</i>	<i>SE</i>	95% CI		<i>t</i>	<i>p</i>
			<i>LL</i>	<i>UL</i>		
(Intercept)	6.360	3.363	-.231	12.950	1.891	.063
Acute Grief Symptoms	0.663	0.116	.437	.890	5.735	<.001
Unexpectedness of Death	-0.357	0.467	-1.273	.559	-0.764	.448
Cause of Death	0.509	1.706	-2.834	3.851	0.298	.767

Note. CI = confidence interval; *LL* = lower limit; *UL* = upper limit.

These findings suggest that, while elevated levels of acute grief symptoms lead to more prolonged grief symptoms, neither an unexpected death nor an unnatural death is positively associated with prolonged grief symptoms 12 months after the loss. Therefore, the hypothesis has been rejected.

Discussion

The current study aimed to examine 1) to what extent the unexpectedness of death predicts prolonged grief and 2) to what extent the cause of death predicts prolonged grief 12 months after the loss while controlling for acute grief symptoms. In doing so, this research analyzed interview data among 65 bereaved people collected through two telephonic interviews one year apart. The findings of this study indicated that acute grief symptoms were significant predictors of prolonged grief symptoms one year after a loss. However, the unexpectedness and cause of death did not have a substantial relationship to prolonged grief symptoms. Our results, therefore, emphasize the impact of acute grief symptoms, demonstrating their significant effect beyond potential influences like the unexpectedness and cause of death.

The finding that acute grief is a substantial predictor of prolonged grief symptoms aligns with existing literature that suggests that the intensity of initial grief reactions can be one of the strongest indications of long-term grief outcomes (Boelen & Lenferink, 2020; Szuhany et al., 2021). Moreover, the impact of acute grief can possibly be explained by initial underlying vulnerability within the bereaved person. For example, such vulnerabilities might include limited coping mechanisms or pre-existing mental health conditions present before the loss, which can put a strain on the natural process towards grief resolution (Boelen & Smid, 2017; Shear et al., 2011). In addition to that, severe acute grief could lead to maladaptive coping mechanisms, like self-blame, avoidance, or rumination, which might prevent the individual from effectively processing their loss (Fisher et al., 2020; Nazaré et al., 2013;

Stroebe et al., 2007). These factors can collectively contribute to the persistence of grief symptoms, making it more likely for acute grief to transition into prolonged grief.

Surprisingly to our expectations, we found a non-significant relationship between the unexpectedness of death and the cause of death in relation to prolonged grief symptoms one year after the loss. This finding challenges the idea that unexpected or unnatural deaths lead to more severe and prolonged grief, as prior studies have shown explicitly that these loss-related characteristics can intensify grief as a consequence of added shock and traumatic stress surrounding the loss (Clements et al., 2004; Green, 2000). However, the results of this study suggest that intensity of acute grief plays a more dominant role in the prediction of prolonged grief symptoms, rather than the unexpectedness or the cause of the death itself.

A possible explanation for the insignificance of the unexpectedness of death as a predictor of prolonged grief symptoms might be attributed to the assessment of this loss-related characteristic. Participants might have had difficulty with accurately recalling or reporting the unexpectedness of death, especially since several months had passed since the loss at the point of measuring this aspect (Safer et al., 2010). As a result, participants might underestimate the initial unexpectedness of the death due to obtained coping mechanisms or diminished grief symptoms at the point of measurement (Safer et al., 2010). The opposite is also plausible, as individuals who suffer from prolonged grief symptoms may tend to overestimate the initial unexpectedness of the loss and other grief-related aspects as a result of continual emotional distress, potentially causing memory distortion (Boelen et al., 2006; Safer et al., 2010). However, several studies have neither found a significant association between unexpected losses and prolonged grief symptoms (Bonnano et al., 1995; Bornstein et al., 1973; Fulton & Gottesman, 1980; Madison & Walker, 1967; Schwartzberg & Janoff-Bulman, 1991; Zisook & Shuchter, 1991; as cited in Kaltman & Bonanno, 2003), whereby their overall null findings could possibly be explained by the unexpectedness of a loss that generally

confounded with the violent natures of the deaths (Bonanno & Kaltman, 1999). Therefore, it could be the violent nature of unexpected deaths that accounts for the association with prolonged grief symptoms.

Furthermore, the lack of significance of the cause of death as a risk factor for prolonged grief symptoms might be caused by the low number of participants within the ‘unnatural death’ category. This may have resulted in a reduced ability to identify differences between the categories of natural and unnatural deaths, potentially hindering the identification of significant variations regarding prolonged grief symptoms. Moreover, few participants in this sample met PGD criteria at T1, which may be essential for a well-grounded investigation of the progression of prolonged grief symptoms between the loss-related categories. Lastly, the division of ‘cause of death’ into merely two categories (i.e., natural and unnatural death) may not be comprehensive and accurate enough to identify the various effects of the cause of death as a predictor of prolonged grief symptoms. The complexity of grief responses suggests that a more detailed classification of the cause of death, such as further subcategories of unnatural deaths, is necessary to assess its predictive value accurately. For instance, death resulting from accidents, suicides, and homicides each cause individuals to face unique psychological and emotional challenges that can affect their grieving process in different ways (Boelen et al., 2016; Djelantik et al., 2020). Future studies could collect samples from more diverse data and compare the effects across additional categories of the cause of death.

Strengths of the Study

The main strength of this study is its longitudinal design, which enabled this research to assess grief symptoms at multiple time points (in the acute grieving phase and 12 months post-loss) and therefore provides a deeper understanding of how grief evolves over time. Moreover, this study controlled for acute grief symptoms when investigating the role of the unexpectedness of death and cause of death as predictors of prolonged grief, thereby better

isolating the impact of these variables and enhancing the validity of the results. This research also adds further knowledge to the field of grief studies and challenges existing assumptions about the role of unexpectedness and cause of death in the progression of grief, encouraging further research. In addition, this study design incorporated interviews conducted via a clinical interviewer on the phone instead of an online survey, allowing for clarification of questions and a sense of personal connection to the interviewer, eventually leading to reduced misinterpretation and possibly higher response rates. Ultimately, this study highlighted the importance of acute grief symptoms as predictors of prolonged grief and therefore provides valuable information for early intervention strategies and other support programs for bereaved individuals.

Limitations

Nonetheless, this study also has some prominent limitations. First, the sample recruitment method of this research might have attracted participants that were less representative of the general population, potentially affecting their progression of grief symptoms. Participants were gathered using the ‘grief monitor’ on rouwbehandeling.nl, suggesting that individuals using this self-monitoring tool were actively seeking grief support. Therefore, this sample might have predominantly comprised individuals who experienced more intense acute grief symptoms and consequently felt a greater need for help. In addition to that, using a self-selected sample might have drawn more motivated participants who sought a deeper understanding of their grief and felt a desire for belongingness to a grieving community. On the one hand, this characteristic of heightened self-awareness and feeling of engagement might result in decreased grieving symptoms among the participants throughout the duration of research project (McNally et al., 2021; Priest, 1987). On the other hand, such enhanced self-consciousness could increase grief symptoms by making individuals more sensitive to stressful events and psychological distress through rumination (Palmier-Claus et

al., 2012; Trapnell & Campbell, 1999). Either scenario shows a plausible relation between self-awareness and progression of grief symptoms, wherefore future research should take this probable characteristic of a self-selected sample into consideration.

Second, the sample size and its' comparatively homogeneous characteristics may limit the generalizability of the findings of this study. As mentioned earlier, while the sample size of 65 participants is relatively high for a longitudinal grief study, it was relatively low for comparing group differences. Regarding the loss-related characteristics of the sample, most participants had lost a partner or a parent and lost their loved one due to a natural death (physical illness). Among the unnatural deaths, most people experienced a loss due to accidents and suicides, yet the sample did not include losses caused by homicide. Therefore, the results of this study might not generalize to people who (i) experienced the loss of a family member other than their partner or parent, (ii) lost their loved one due to an unnatural death, (iii) lost their loved from an unnatural cause other than an accident or suicide. Ultimately, a difference between the answers of participants and non-participants could have caused sampling bias, which might have reduced the overall representativeness of the study population (Kang, 2013; Pampaka et al., 2016).

Third, while the study did control for acute grief symptoms, it did not account for other potential confounding factors. For example, contextual aspects like mental health history and social support systems have been shown to be highly influential factors in the progression of prolonged grief symptoms (Çakar, 2020; Kaunonen et al., 1999; Lenger et al., 2020). Another instance is that the T3 interview did not include a question regarding other losses that participants might have experienced within the past year. This prevents the current research from accounting for potential intervening psychological and emotional effects that could result from losses other than the primary loss being examined (Mercer & Evans, 2006).

Future Directions

More research is needed to fill the gap of knowledge about the progression of prolonged grief symptoms, which could, in turn, add to the findings of this study. To start with, the measurement of unexpectedness should preferably be assessed closer to the time of the actual loss. Adding to that, more powerful studies are needed with more specific and equal categories in classifying the cause of death to better explain how particular causes of death contribute to the severity and duration of grief symptoms (Boelen et al., 2016; Djelantik et al., 2020). A future sample should incorporate greater diversity in background and loss-related characteristics and more participants meeting the PGD criteria at T1 to properly investigate the progression of prolonged grief. Future studies should specifically seek a sample with more traumatic losses to better depict the range and severity of grief symptoms associated with unnatural deaths. Lastly, it would be sensible to measure the advancement of grief symptoms at more than two time points, allowing future studies to investigate the fluctuations and precise advancement of grief as a consequence of the unexpectedness and cause of death.

Conclusion

To conclude, this research has underscored the significance of acute grief symptoms as risk factors for prolonged grief symptoms. Hence, experiencing higher levels of acute grief symptoms is associated with exhibiting higher levels of prolonged grief symptoms 12 months later. For clinicians, these results have demonstrated the worth of early intervention that focuses on acute grief symptoms, regardless of the unexpectedness or the cause of death. Furthermore, this research highlighted the importance of further investigating the role of unexpectedness and cause of death in grief progression, as those loss-related characteristics were currently not found to be significant predictors of prolonged grief, in contrast to prior studies. The findings of the current study may be a starting point for researching the specific

aspects of acute grief and further exploring the risk factors of prolonged grief so that it encourages the development of timely and tailored bereavement interventions.

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Appendix A

DSM-5-TR Criteria for PGD

Figure 1

DSM-5-TR Criteria for Prolonged Grief Disorder

DSM-5-TR CRITERIA FOR PROLONGED GRIEF DISORDER

- A. The death, at least 12 months ago, of a person who was close to the bereaved (for children and adolescents, at least 6 months ago).
- B. Since the death, the development of a persistent grief response characterized by one or both of the following symptoms, which have been present most days to a clinically significant degree. In addition, the symptom(s) have occurred nearly every day for at least the last month:
 - 1. intense yearning/longing for the deceased person
 - 2. preoccupation with thoughts or memories of the deceased person (in children and adolescents, preoccupation may focus on the circumstances of the death)
- C. Since the death, at least 3 of the following symptoms have been present most days to a clinically significant degree. In addition, the symptoms have occurred nearly every day for at least the last month:
 - 1. Identity disruption (e.g., feeling as though part of oneself has died) since the death
 - 2. Marked sense of disbelief about the death
 - 3. Avoidance of reminders that the person is dead (in children and adolescents, may be characterized by efforts to avoid reminders)
 - 4. Intense emotional pain (e.g., anger, bitterness, sorrow) related to the death
 - 5. Difficulty reintegrating into one's relationships and activities after the death (e.g., problems engaging with friends, pursuing interests, or planning for the future)
 - 6. Emotional numbness (absence or marked reduction of emotional experience) as a result of the death
 - 7. Feeling that life is meaningless as a result of the death
 - 8. Intense loneliness as a result of the death
- D. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- E. The duration and severity of the bereavement reaction clearly exceeds expected social, cultural or religious norms for the individual's culture and context.
- F. The symptoms are not better explained by major depressive disorder, posttraumatic stress disorder, or another mental disorder, or attributable to the physiological effects of a substance (e.g., medication, alcohol) or another medical condition.

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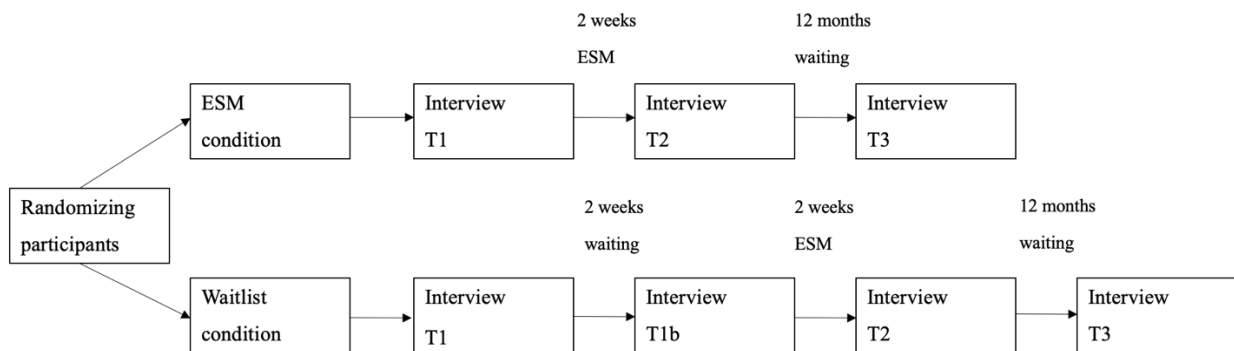
Note. From “Validation of the new DSM-5-TR criteria for prolonged grief disorder and the PG-13-revised (PG-13-R) scale,” by Prigerson, H. G., Boelen, P. A., Xu, J., Smith, K. V., & Maciejewski, P. K., 2021, *World Psychiatry*, 20(1), 96–106 (<https://doi.org/10.1002/wps.20823>). Copyright 2020 by the American Psychiatric Association.

Appendix B

RCT Study Design

Figure 2

Randomized Controlled Trial (RCT) Study Design



Appendix C

TGI-CA Item Mapping

Table 2

Traumatic Grief Inventory-Clinician Administered (TGI-CA) Item Mapping

	TGI-CA item	DSM-5-TR PGD	ICD-11 PGD
1	In the past month, did you have intrusive thoughts or images related to the death of [____]?	B2	B2
2	In the past month, did you experience intense emotional pain, sadness, or pangs of grief?	C4*	C1
3	In the past month, did you find yourself longing or yearning for [____]?	B1	B1
4	In the past month, did you experience confusion about your role in life or a diminished sense of self?		
5	In the past month, did you have trouble accepting the loss?		C6
6	In the past month, did you avoid places, objects, or thoughts that reminded you that [____] has died?	C3	
7	In the past month, did you find it hard to trust others?		
8	In the past month, did you feel bitterness or anger related to the death of [____]?	C4*	C3
9	In the past month, did you find it difficult to move on (e.g., making new friends, pursuing new interests)?	C5	C10
10	In the past month, did you feel emotionally numb?	C6	C9
11	In the past month, did you feel that life is unfulfilling or meaningless without [____]?	C7	
12	In the past month, did you feel stunned, shocked, or dazed by [____] death?		
13	In the past month, did you notice significant reduction in social, occupational, or other	D	D

- important areas of functioning (e.g., domestic responsibilities) as a result of [____] death?
- 14 In the past month, did you have intrusive thoughts and images associated with the circumstances of [____] death?
- 15 In the past month, did you experience difficulty with positive reminiscing about [____]?
- 16 In the past month, did you have negative thoughts about yourself in relation to the death of [____]? (e.g., thoughts about self-blame). C2
- 17 In the past month, did you have a desire to die in order to be with [____]?
- 18 In the past month, did you feel alone or detached from others? C8
- 19 In the past month, did it feel unreal that [____] is dead? C2 C4
- 20 In the past month, did you put an intense blame on others because of [____] death? C5
- 21 In the past month, did it feel as if a part of yourself has died along with [____]? C1 C7
- 22 In the past month, did you have difficulties experiencing positive feelings? C8

*Note.** The highest answer option of one of these two items represented this symptom. DSM-5-TR = 5th text revised edition of the Diagnostic and Statistical Manual of Mental Disorders; ICD-11 = 11th edition of the International Classification of Diseases; PGD = Prolonged Grief Disorder.

Appendix D

Used RStudio Packages

Table 3

Packages for RStudio Used in the Data Analysis

RStudio Package
1. car
2. lmtest
3. sandwich
4. MASS
5. broom
6. ggplot2
7. performance
8. haven
9. dplyr
10. fastDummies
11. moments
12. reshape2
13. lme4
14. psych

Note. Packages are suitable for Version 2024.04.1+748 of Rstudio.

Appendix E

Average Total Scores TGI-CA

Table 5

Loss-Related Categories and Average Levels of Prolonged Grief Symptoms.

Loss-Related Category	<i>N (%)</i>	Total Score of TGI-CA at T1, <i>M (SD)</i>	Total Score of TGI-CA at T3, <i>M (SD)</i>
Unexpectedness of Death			
Not at all unexpected	16 (24.62)	25.9 (7.7)	23.7 (7.2)
A little unexpected	11 (16.92)	30.1 (7.9)	26.2 (7.5)
Quite unexpected	9 (13.85)	28.9 (4.0)	22.2 (5.9)
Very unexpected	8 (12.31)	29.0 (5.5)	24.1 (7.7)
Completely unexpected	21 (32.31)	31.3 (5.3)	26 (6.9)
Cause of Death			
Natural Death	50 (76.92)	29.0 (6.5)	24.5 (7.3)
Unnatural Death	15 (23.08)	29.6 (6.4)	25.3 (6.2)
Total Sample	65 (100.00)	29.2 (6.5)	24.7 (7.0)