

Pathological Grief and Depression: An Examination of Mourning Ukrainians

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Abstract

With the rise of armed violence in Ukraine, understanding the psychometric properties of tools that assess the psychological well-being of its population is crucial for healthcare providers. Especially people who lost a loved one are at risk of developing psychopathologies such as Prolonged Grief Disorder (PGD) and depression and need to be assessed adequately. In that context, this research investigated the psychometric properties of the Patient Health Questionnaire-9 (PHQ-9) and the Traumatic Grief Inventory-Self Report Plus (TGI-SR+) in a sample of grieving Ukrainians ($n = 254$, $M = 33.53$ years, $SD = 7.29$). Additionally, this research explored the relationship between Prolonged Grief Disorder (PGD) and depression and the influence of the type of loved person lost (e.g., spouse, parent, child) on the severity of depressive symptoms. Exploratory factor analysis suggested a three-factor structure for the PHQ-9 and the TGI-SR+ in the Ukrainian population, deviating from the conventional one-factor structures. Further analysis established a moderate positive correlation between PGD and depressive symptoms ($p < .001$). The loss of a partner was associated with the highest levels of depression in the sample, while the loss of a child was related to the lowest. The main limitation of the present study is a lack of gender diversity in the sample due to a potential recruitment bias (94% of participants were female). This study aims to contribute to the existing body of literature about grief and depression in the bereaved by highlighting the need for structurally sound assessment tools. Future research should utilize more diverse samples and incorporate longitudinal study designs.

Keywords: Depression, Prolonged Grief Disorder, PHQ-9, TGI-SR+, War

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The profound experience of losing a loved person, such as a parent, partner, or friend, can trigger various reactions and emotions that, in most instances, are understood to be a natural part of grieving (Kristensen et al., 2012). These reactions may include emptiness, despair, yearning, or intense loneliness (Ashouri & Yousefi, 2023).

However, for some individuals, the experience of loss can manifest in severe mental health conditions such as anxiety disorders, depression, post-traumatic stress disorder (PTSD), substance use disorder (SUD) and prolonged grief disorder (PGD) (Brent et al., 2009; Kristensen et al., 2012; Prigerson et al., 2009; Shear et al., 2007; Zisook & Kendler, 2007). PGD encompasses emotional, cognitive, and behavioural responses that deviate significantly from the typical reactions to bereavement concerning their duration and intensity (Lenferink et al., 2022). Emotional symptoms of PGD include profound sadness, anger, guilt, and yearning for the deceased (Ashouri & Yousefi, 2023). Cognitive manifestations can include denial, intrusive thoughts, and an overwhelming preoccupation with the lost individual, while behavioural symptoms may include professional burnout, social withdrawal, and other significant disruptions to daily functioning (Ashouri & Yousefi, 2023). There is also a physiological dimension to PGD, which includes appetite and sleep disturbances (Stroebe et al., 2007). While the majority of people affected by loss learn to cope with it and typically resume their daily lives within a year after, those suffering from PGD often struggle to do so. Instead of adapting healthily, they may develop maladaptive pathologies in response to their loss (Ashouri & Yousefi, 2023).

Contemporary research conducted over the last quarter-century indicated that, while there are similarities between the symptoms of PGD and those of depression and PTSD, PGD is to be handled as a distinct disorder. It represents an acute, debilitating form of grief that often requires specialized treatments (Aoun et al., 2021; Haneveld et al., 2022). In recognition of its distinctness, PGD has been included as a separate disorder in recent editions of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR) and the International Classification of Diseases (ICD-11). However, these classification systems define PGD in slightly different ways. The DSM-5-TR classifies PGD as consisting of two core symptoms, the intense yearning for the deceased and a preoccupation with thoughts or memories of the deceased, as well as eight additional symptoms, such as intense loneliness. In contrast, the ICD-11 defines a different timeframe suitable for the diagnosis (six months after the loss in the ICD-11 versus 12 months in DSM-5-TR), and a larger number of symptoms (12 in ICD-11 versus 10 in DSM-5-TR) (Lenferink et al., 2022).

Even though both constructs seem to be well established, the relation of PGD to depression remains somewhat unclear. While Lenferink et al. (2022) emphasize the independence of PGD as a separate construct from depression, other researchers such as Zisook and Kendler (2007) have challenged this notion in the past and emphasized a relationship between grief and depression.

In the DSM-5, different types of depression are defined by constructs such as persistent depressive disorder, premenstrual dysphoric disorder (PMDD) and major depressive episode (MDE). MDE for example, is characterized by a pervasive and persistent low mood, loss of interest or pleasure in activities, significant changes in appetite or weight, disturbances in sleep patterns, fatigue or loss of energy, feelings of worthlessness or guilt, difficulty concentrating or making decisions, and recurrent thoughts of death or suicide ideation (Kennedy, 2022). Previous research has already established an association between pathological grief reactions and depressive disorders such as MDE. For example, in a study by Prigerson et al. (1999), pathological grief was identified as a strong predictor for MDE, emphasizing a deeply intertwined relationship between both psychological states. In the case of Persistent Depressive Disorder, which is characterized by experiencing chronically depressed mood for at least two years, Kokou-Kpolou et al. (2018) could establish an association between Persistent Depressive Disorder and persistent grief in a sample of women who experienced perinatal loss. For up to ten years after losing a child, a relationship between negative cognitions associated with persistent depression and persistent grief was observable. In the case of PMDD, no studies investigating an association with adverse grief reactions have been conducted yet.

In the ICD-11, depression is also defined by different constructs, such as a depressive episode (mild to severe), recurrent depressive disorder, and dysthymia. These resemble, to a certain degree, their DSM-5 counterparts in being associated with adverse grief reactions. For example, a study by Parker et al. (2015) that tried to establish clinical and phenomenological differences between a depressive episode and grief found so many similarities, that the main differentiator was the duration of both psychological states. A depressive episode tends to remain an episode, while grief sometimes lasts a lifetime (Parker et al., 2015). If the time dimensions are more similar, for example, with Recurrent Depressive Disorder, depression and grief can become hard to distinguish (Shear, 2012). The same holds for clinically relevant dysthymia, as shown by a study by West and George (2002), who identified pathological mourning as an important variable associated with dysthymia in women.

These relationships between different types of depression and grief lay evidence of an association between both constructs. This is also supported by studies of Eisma et al. (2013) and Li et al. (2019), who identified common mediators for both psychopathologies (avoidance and guilt). Additionally, both PGD and depression have been shown to be strongly associated with external stressors, such as bereavement and warfare.

Concerning bereavement, studies established different types of predictor variables on the intensity and duration of both depression and grief. For example, a study by Kersting et al. (2011) established that significantly different levels of intensity of grief and depression were present in their sample when controlling for the type of relative that has been lost (e.g spouse, parent, child) and the cause of death (e.g cancer, traffic accident). Another study by Rådestad et al. (1996) highlighted the long-term psychological complications in women who experienced a stillbirth. The study found a notably higher prevalence of anxiety and depression among these women compared to those who had given birth to a child that died postpartum.

Concerning warfare, a study about survivors of the Kosovo War conducted by Morina et al. (2010), showed that a high number of participants were affected by Major Depressive Disorder (38.3%) and PGD (38,3%) even a decade after the war. The same study also points out gender differences, with women significantly more affected by PGD than men. A follow-up study by Morina (2011) that explicitly addressed widows of the Kosovo conflict, came to similar findings. PGD seems to be especially long-lasting when developed in an armed conflict. A study by Stammel et al. (2013) established that 14.3% of Cambodians who lost a family member to the Khmer Rouge regime over thirty years ago are still affected.

War has now arrived in Europe. In 2022, an escalation of the Russo-Ukrainian conflict led to the large-scale invasion of Ukraine. This event precipitated the disintegration of the European post-Soviet political order and sparked the fastest-growing refugee crisis in Europe since World War II (Opióła et al., 2022). The resulting conflict has inflicted severe damage on critical infrastructure, rendering cities and communities in Ukraine desolate and resulting in the displacement of millions (Javanbakht, 2022). The Ukrainian population bears the brunt of this turmoil, with the loss of life and psychological distress having a profound impact, particularly on those who have suffered the death of a loved one during or shortly before the start of hostilities (Kristensen et al., 2012; Morina, 2011). Thousands of Ukrainians have experienced the loss of loved ones while simultaneously experiencing the stressors of modern warfare (Bērziņš, 2020; Krishnan, 2022; S2 Underground, 2022). Previous studies have already outlined how much civilian populations of war-torn countries suffer from armed

conflict (Fontana et al., 1997; Morina et al., 2010). Therefore, it is essential to gauge the extent to which psychopathologies such as PGD and depression manifest in the Ukrainian population during the current war.

However, essential screening tools for both PGD and depression have not yet been validated in the Ukrainian population (Javanbakht, 2022; Osokina et al., 2023). Additionally, questions regarding the relationship between PGD and depression remain unanswered, as both are shown to be associated with common mediators, but handled as independent constructs (Eisma et al., 2013; Kokou-Kpolou., 2022; Lenferink et al., 2022; Li et al., 2019). Therefore, this study aims to determine the efficacy of two psychometric questionnaires, the PHQ-9 and TGI-SR+, in gauging symptoms of depression and traumatic grief among adult Ukrainians who have suffered the loss of a loved one. Furthermore, it seeks to explore whether the nature of the loss experienced influences the depressive scores as measured by the PHQ-9 and whether a correlation between prolonged grief disorder and depressive symptoms is present.

Research Questions

This research aims to answer four questions:

1. What are the PHQ-9's psychometric properties when measuring depression symptoms among grieving Ukrainians?
2. Does the type of loss impact the severity of depression symptoms as measured by the PHQ-9?
3. What are the TGI-SR+'s psychometric properties when measuring symptoms of prolonged grief disorder among grieving Ukrainians?
4. Is there a correlation between depressive symptoms and prolonged grief disorder?

Objectives

To address these research questions, the study proposes three objectives:

- I. The evaluation of the psychometric properties of the PHQ-9 and TGI-SR+ within the mourning Ukrainian population.
- II. An investigation about whether the type of loss experienced impacts the severity of PHQ-9 measured symptoms of depression.
- III. An exploration of the potential relationship between grief and depression among mourning Ukrainians.

Methods

Design

This study serves as an extended part of the project “First Aid for Grief in Ukrainian Refugees”, which comprised a variety of questionnaires including the PHQ-9 and TGI-SR+ and had a quantitative cross-sectional within-subject survey design.

Participants were recruited through snowball sampling in multiple countries, utilizing resources such as municipality contacts, social media platforms (e.g., Instagram, LinkedIn, WhatsApp, and Facebook), recruitment posters (Appendix A), and personal contacts. Snowball sampling had been deemed most effective for this study design, as it allowed for the efficient and rapid identification of potential participants through referrals from existing participants, researchers, and other study supporters (Sadler et al., 2010). This approach has also been deemed most suitable given the limited timeframe available to conduct the study.

Within the study, demographic information, including age and gender was collected from participants using the platform Qualtrics. Additionally, information about whether the participant left their home due to the war and, if so, to where (internally or externally displaced) has been obtained.

This study has been approved by the BMS Ethics Committee (referral number: 221111). Participant gathering for this study commenced in April 2023 and concluded in May 2023.

Participants

The study is based on a sample of 254 Ukrainians who have experienced the loss of a loved one. Of the sample, 94% (239) identified as female, 4% (9) as male, and 2% (6) as other. Participant ages range from 19 to 61 years, with a mean age of 33.53 ($SD = 7.29$). The inclusion criteria for the participants were: holding Ukrainian nationality, being 18 years or older, and having lost a loved one. All participants provided consent to the processing of their data.

Materials

The Patient Health Questionnaire 9 (PHQ-9)

For this study, the PHQ-9 has been used to assess depressive symptoms among the participants. It is a self-administered, 9-item questionnaire designed to screen for depressive symptoms (Kroenke et al., 2001). The PHQ-9 is based on the criteria for diagnosing major depressive disorder (MDD) as outlined in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV). Its widespread use in both research and clinical contexts can be attributed to its high levels of validity and reliability as well as its conciseness

(Kroenke et al., 2001). The items are easy to understand and archetypical. For instance, one item assesses “little interest or pleasure in doing things”, while another item looks at “feeling down, depressed, or hopeless”. Participants are asked to rate the frequency of each symptom over the past two weeks on a scale ranging from 0 (not at all) to 3 (nearly every day). The total score, which can be computed by adding up the responses for all nine items, may range from 0 to 27. Higher scores indicate more severe depressive symptoms. Scores are usually interpreted as; no depression (0-4), mild depression (5-9), moderate depression (10-14), moderately severe depression (15-19), and severe depression (20-27) (Kroenke et al., 2001).

The PHQ-9 has been validated for use in a variety of different languages and populations, and almost all studies conducted proved a good or very good validity when assessing for depressive symptoms (Gharaibeh, 2019; Kroenke et al., 2001; Ngoc et al., 2021; Woldetensay et al., 2018; Yeung et al., 2008) Studies using a Ukrainian version of the PHQ-9 to screen for depressive symptoms in Ukrainians also exist (Cheung et al., 2019; Osokina et al., 2022; Shevlin et al., 2018), as well as studies with bereaved Ukrainians (Aoyama et al., 2021; Han et al., 2017). However, these studies did not examine the psychometric properties of the PHQ-9 in their respective sample.

The Traumatic Grief Inventory-Self Report Plus (TGI-SR+)

The TGI-SR+ was utilized to measure symptoms of prolonged grief disorder (PGD) among the study participants, in line with the definitions provided by DSM-5-TR and ICD-11 (Lenferink et al., 2022). The questionnaire comprises 22 items that inquire about participants' experiences following the loss of a loved one. Participants express the frequency of these experiences using a 5-point Likert scale, which ranges from 1 (never) to 5 (always), with higher total scores indicating a more severe presence of PGD. Examples of items included preoccupation with the deceased, reactions of distress, intense longing or yearning, avoidance of reminders of the loss, and feelings of emotional numbness (Lenferink et al., 2022).

The TGI-SR+ has previously been validated in French and Dutch populations in which good internal consistency and very good psychometric properties were reported (Kokou-Kpolou et al., 2022; Lenferink et al., 2023).

Procedure

Participants were referred to the project website (www.ВЫМИРЬЮНЯГОРЯ.COM) where they were able to complete the "Grief Measurement Questionnaire" using the Qualtrics platform. They could also access the survey via a direct link provided on the recruitment posters, in emails, or social media posts addressing them.

Prior to participating in the research, individuals were presented with a consent form. This form provided details about the study's aims, possible risks, their voluntary participation, and the right to withdraw at any point without repercussions. Furthermore, the form assured participants of the anonymity of their data. Once consent was granted, the research questionnaires were administered. Initially, participants were asked to provide socio-demographic information. Subsequently, they were queried about specifics relating to their loss, which included the cause of their loved one's death, their relationship to the deceased, and the date when the loss occurred. Following these initial questions, participants completed the first questionnaire concerning grief, and upon completion, a screen displayed the participant's grief category (green, yellow, orange, red; see Appendix B). Additionally, advice on how to handle their grief, including a link to the project website, was seen. Afterward, a screen asked for informed consent, the participant's email, and if they would like to complete the seven following questionnaires about different psychological constructs, including the TGI-SR+ and the PHQ-9.

Data Analysis

The following statistical analyses were conducted using Rstudio (2023) to address the research questions.

To evaluate the psychometric properties of the PHQ-9 in measuring symptoms of depression among mourning Ukrainians, both an exploratory factor analysis (EFA) and a confirmatory factor analysis (CFA) were performed. Cronbach's alpha was computed to assess internal consistency, and test-retest reliability was evaluated by intraclass correlation coefficients (ICC).

To investigate if the type of loss experienced by an individual did impact the severity of depressive symptoms as measured by the PHQ-9, a one-way analysis of variance (ANOVA) was conducted. A subsequent Tukey HSD followed.

For determining the psychometric properties of the TGI-SR+ in measuring symptoms of prolonged grief disorder among mourning Ukrainians, also both EFA and CFA were performed. Internal consistency was assessed using Cronbach's alpha, and test-retest reliability was evaluated through ICC.

Exploring the relationship between depressive symptoms and prolonged grief disorder was done by conducting a Pearson correlation analysis between the PHQ-9 and TGI-SR+ scores. Additionally, a linear regression analysis was performed with the total scores of the PHQ-9 as the predictor variable and the TGI-SR+ as the outcome variable to examine the extent to which depressive symptoms might predict prolonged grief.

Results

Descriptive Demographics

In the beginning, 752 participants were enrolled in the study. Following the data-cleaning process, during which incomplete responses or missing consents were removed, the final number of participants came down to 254.

The average age was 33.53 years ($SD = 7.29$), ranging from 19 to 61 years old. Concerning gender, 94% of participants were female ($n = 239$), while a minority of 4% identified as male ($n = 9$), and 2% of participants identified as “Other” ($n = 6$).

The frequency of the different relations of loved ones lost differed within the sample. 33% of participants reported the loss of a parent ($n = 83$), 20% of a partner ($n = 52$), and 12% the loss of a grandparent ($n = 30$). On average, participants mourned a loss that occurred 31.05 months ago (2.5 years). Regarding the cause of death, most participants (52%) lost their loved one due to physical illness (e.g., old age, cancer, cardiovascular disease, died at birth), whereas 24% reported a loss due to homicide in relation to the war with Russia, while 10% lost someone due to an accident (e.g., traffic accident, drowning, poisoning).

The assumption of the sample data's normality was checked for PHQ-9 and TGI-SR+ total scores. This was assessed using Shapiro-Wilk tests and by visually evaluating quantile-quantile (Q-Q) plots.

Results for the PHQ-9 suggested a significant deviation from normality ($W = .985, p = .01$). The same was found to be true for the TGI-SR+ ($W = .986, p = .01$).

However, a visual analysis of the Q-Q plots for both PHQ-9 and TGI-SR+ revealed a rough alignment of the data points along the reference line, indicating relative normality. This discrepancy between the results may be due to the higher sensitivity of the Shapiro-Wilk test to small deviations from full normality in bigger sample sizes (Ahad et al., 2011).

RQ 1: The Psychometric Properties of the PHQ-9 when Measuring Symptoms of Depression Among Mourning Ukrainians

Reliability Analysis

The internal consistency reliability of the PHQ-9 was assessed using Cronbach's alpha. The scale demonstrated good reliability ($\alpha = .86, 95\% CI [0.83, 0.89]$).

Exploratory Factor Analysis

An exploratory factor analysis (EFA) for a one-factor model was conducted. It accounted for 41.6% of the total variance respectively but was found to be inadequate ($\chi^2 (27) = 96.22, p < .001$). Next, a two-factor model was tested. It accounted for 46.6% of the total variance (Factor 1: 25.0%, Factor 2: 21.6%). However, this model was also found to be

inadequate ($\chi^2(19) = 52.74, p < .001$). Finally, a three-factor solution was tested, which accounted for 53.1% of the total variance (Factor 1: 20.3%, Factor 2: 16.9%, Factor 3: 16.0%). This model was found to be adequate ($\chi^2(12) = 19.06, p = .0871$).

Confirmatory Factor Analysis

Subsequently, confirmatory factor analysis (CFA) was used to compare the proposed one (Ryan et al., 2013) and two-factor (Beard et al., 2016) model solutions together with the three-factor solution proposed by the EFA.

The one-factor model as proposed by Ryan et al., 2013 posited all PHQ-9 items onto a single latent factor. Fit indices for this model were: $\chi^2(27) = 98.349, p < .001, CFI = .914, TLI = .885,$ and $RMSEA = .102 [.081, .124]$. All factor loadings onto this single factor were significant at $p < .001$.

The two-factor model encompassing a factor for somatic and a factor for cognitive items, as proposed by Beard et al. (2016) showed improvement over the one-factor model: $\chi^2(26) = 74.854, p < .001, CFI = .941, TLI = .918,$ and $RMSEA = .086 [.064, .109]$. All factor loadings onto their respective factors were significant at $p < .001$. The relationship between the "somatic" and "cognitive" factors was also significant ($p < .001$).

Lastly, the three-factor model as explored by the EFA was tested. This model grouped the PHQ-9 items as follows: Factor 1 included items 3 (sleeping), 4 (feeling tired), and 5 (appetite); Factor 2 included items 6 (feeling bad about oneself), 7 (trouble concentrating), and 9 (suicide ideation); and Factor 3 included items 1 (little interest) and 2 (feeling down). Item 8 (Moving or speaking slowly) was dropped because it did not load strongly on any of the factors. The fit indices for this model were: $\chi^2(17) = 26.417, p = .067, CFI = .987, TLI = .979,$ and $RMSEA = .047 [.000, .080]$. All factor loadings were significant at $p < .001$. The covariance between the factors was significant too ($p < .001$), which therefore suggests a relationship between these three factors.

In conclusion, the CFA of the PHQ-9 demonstrated that the three-factor model derived from the exploratory factor analysis (EFA) showed the best fit to the data since it yielded improved fit indices compared to the one-factor and two-factor models. Most importantly, this model resulted in a non-significant Chi-square test ($p = .067$), which indicates a good model fit. Additionally, all items loaded significantly onto their respective factors ($p < .001$), which provides evidence that these items are good indicators of their latent constructs. Furthermore, significant covariances between all three factors suggested meaningful interrelationships between these constructs. Therefore, these results (Table 1) support the use of a three-factor-eight-item model for the PHQ-9.

Table 1*Confirmatory Factor Analysis for PHQ-9 Models*

| Model | χ^2 (df) | p-value | CFI | TLI | RMSEA [CI] | Factor Loadings p-value | Covariances p-value |
|------------------------------------|----------------|---------|------|------|-------------------|-------------------------|---------------------|
| One-Factor (Ryan et al., 2013) | 98.349 (27) | < .001 | .914 | .885 | .102 [.081, .124] | < .001 | N/A |
| Two-Factor (Beard et al., 2016) | 74.854 (26) | < .001 | .941 | .918 | .086 [.064, .109] | < .001 | < .001 |
| Three-Factor (Current Study) | 26.417 (17) | .067 | .987 | .979 | .047 [.000, .080] | < .001 | < .001 |

Note. The three-factor model in the current study included three factors: Factor 1 with items 3 (sleeping), 4 (feeling tired), and 5 (appetite); Factor 2 with items 6 (feeling bad about oneself), 7 (trouble concentrating), and 9 (suicide ideation); Factor 3 with items 1 (little interest) and 2 (feeling down). Item 8 (Moving or speaking slowly) was excluded due to low factor loadings. The covariances column refers to significant relationships among factors in the model. The reported p-values for factor loadings and covariances refer to the highest p-value in each model.

RQ 2: The Type of Loss Experienced by an Individual and its Impact on the Severity of Depression Symptoms as Measured by the PHQ-9

ANOVA

A one-way analysis of variance (ANOVA) was conducted to examine the effect of the type of loss on the severity of depressive symptoms as measured by the PHQ-9. A significant effect of the type of loss on depressive symptom severity could be identified, $F(6, 247) = 4.083, p < .001$.

Tukey's HSD

Following the ANOVA, Tukey's HSD post hoc test was deployed. Significant differences in depressive scores could be identified between the loss of a partner and a child, and between the loss of a partner and a parent (Table 2).

Table 2

Post-hoc Tukey's HSD Test Comparing Mean Depression Scores Across Different Losstype Groups

| Comparisons (Losstype) | Difference | Std. Error | t-value | p-value | Lower Bound 95% CI | Upper Bound 95% CI |
|------------------------|------------|------------|---------|----------|-----------------------|-----------------------|
| G2 – G1 | -5.06 | 1.47 | -3.44 | .011* | -9.40 | -0.71 |
| G3 – G1 | -4.37 | 1.02 | -4.27 | <.001*** | -7.39 | -1.34 |
| G4 - G1 | -2.19 | 1.47 | -1.49 | .742 | -6.54 | 2.15 |
| G5 - G1 | -3.16 | 1.33 | -2.38 | .203 | -7.08 | 0.76 |
| G7 - G1 | -2.52 | 1.45 | -1.74 | .580 | -6.80 | 1.76 |
| G3 - G2 | 0.69 | 1.39 | 0.50 | .999 | -3.41 | 4.79 |
| G4 - G2 | 2.86 | 1.74 | 1.64 | .645 | -2.29 | 8.02 |
| G5 - G2 | 1.90 | 1.62 | 1.17 | .901 | -2.90 | 6.69 |
| G7 - G2 | 2.54 | 1.72 | 1.47 | .753 | -2.56 | 7.63 |
| G4 - G3 | 2.17 | 1.39 | 1.57 | .693 | -1.92 | 6.27 |
| G5 - G3 | 1.21 | 1.23 | 0.98 | .956 | -2.43 | 4.85 |
| G7 - G3 | 1.85 | 1.36 | 1.36 | .817 | -2.18 | 5.88 |
| G5 - G4 | -0.97 | 1.62 | -0.60 | .997 | -5.76 | 3.83 |
| G7 - G4 | -0.33 | 1.72 | -0.19 | 1.000 | -5.42 | 4.77 |

Note. Values represent differences in depression scores (PHQ-9). The p values are adjusted for multiple comparisons using Tukey's procedure. Asterisks denote significance levels: * $p < .05$, ** $p < .01$, *** $p < .001$. G1 = Partner, G2 = Child, G3 = Parent, G4 = Sibling, G5 = Grandparent, G6 = Grandchild, G7 = Friend.

Table 3 further illustrates the relationship between depression scores and the type of loss experienced.

Table 3*Depression Severity by Type of Loss*

| Kinship | Mean PHQ-9 score | Depression Severity |
|-------------|------------------|---------------------|
| Partner | 23.69 | Severe |
| Sibling | 21.50 | Severe |
| Friend | 21.17 | Severe |
| Grandparent | 20.53 | Severe |
| Parent | 19.33 | Moderately severe |
| Other | 18.73 | Moderately severe |
| Child | 18.64 | Moderately severe |

Note. 1-4 Minimal depression, 5-9 Mild depression, 10-14 Moderate depression, 15-19 Moderately severe depression, 20-27 Severe depression.

RQ 3: The Psychometric Properties of the TGI-SR+ when Measuring Symptoms of Prolonged Grief Disorder Among Mourning Ukrainians

CFA for DSM-5-TR PGD

Confirmatory factor analysis for a single-factor structure was conducted to explore the psychometric properties of the TGI-SR+ when measuring PGD according to the DSM-5-TR criteria. The model demonstrated adequate fit in some aspects ($CFI = .898$, $TLI = .868$, $SRMR = .059$) and unsatisfactory fit in others ($RMSEA = .102$).

Factor loadings were indicated non-significant as all items had p-values greater than .05. This suggests that the TGISR+ items for PGD, according to the DSM-5-TR do not load onto a single factor.

CFA for ICD-11 PGD

In order to evaluate the psychometric properties of the scale representing the ICD-11 criteria for PGD in the TGISR+, a confirmatory factor analysis for a single-factor solution was used and yielded a mixed degree of fit. While some measures suggested satisfactory model fit ($CFI = .837$, $TLI = .801$, $SRMR = .070$), others, such as the $RMSEA$ (.110), indicated room for improvement.

Like with the DSM-5-TR PGD model, factor loadings for the ICD-11 model were identified as non-significant, with all items presenting p -values greater than .05. This implies that the TGISR+ items based on the ICD-11 criteria do not load onto a single factor. The findings have been visualized in Table 4.

Table 4

CFA Measure Values

| Measure | Values (PGD ICD-11) | Values (PGD DSM-5 TR) |
|-------------|------------------------|------------------------|
| CFI | .837 | .898 |
| SRMR | .070 | .059 |
| Chi-squared | 220.283 ($p < .001$) | 127.766 ($p < .001$) |
| RMSEA | .110 | .102 |

Note. CFI = Comparative Fit Index, SRMR = Standardized Root Mean Square Residuals, RMSEA = Root-Mean-Square-Error of Approximation.

Exploratory Factor Analysis

A three-factor model explained the most total variance (49.3%) for the DSM-5-TR PGD construct ($\chi^2(18) = 26.64, p = .086$). Similarly, a three-factor EFA model for ICD-11 PGD accounted for 47.5% of the total variance. However, this model fit the data less well, $\chi^2(33) = 74.93, p < .001$.

Among the DSM-5-TR PGD items, the biggest loadings on the first factor stemmed from items 11 (.782) and 21 (.729), the second factor was most influenced by the combined maximum of items 2 and 8 (.759) and item 3 (.547), while the third factor was dominated by item 10 (.592) and item 9 (.447).

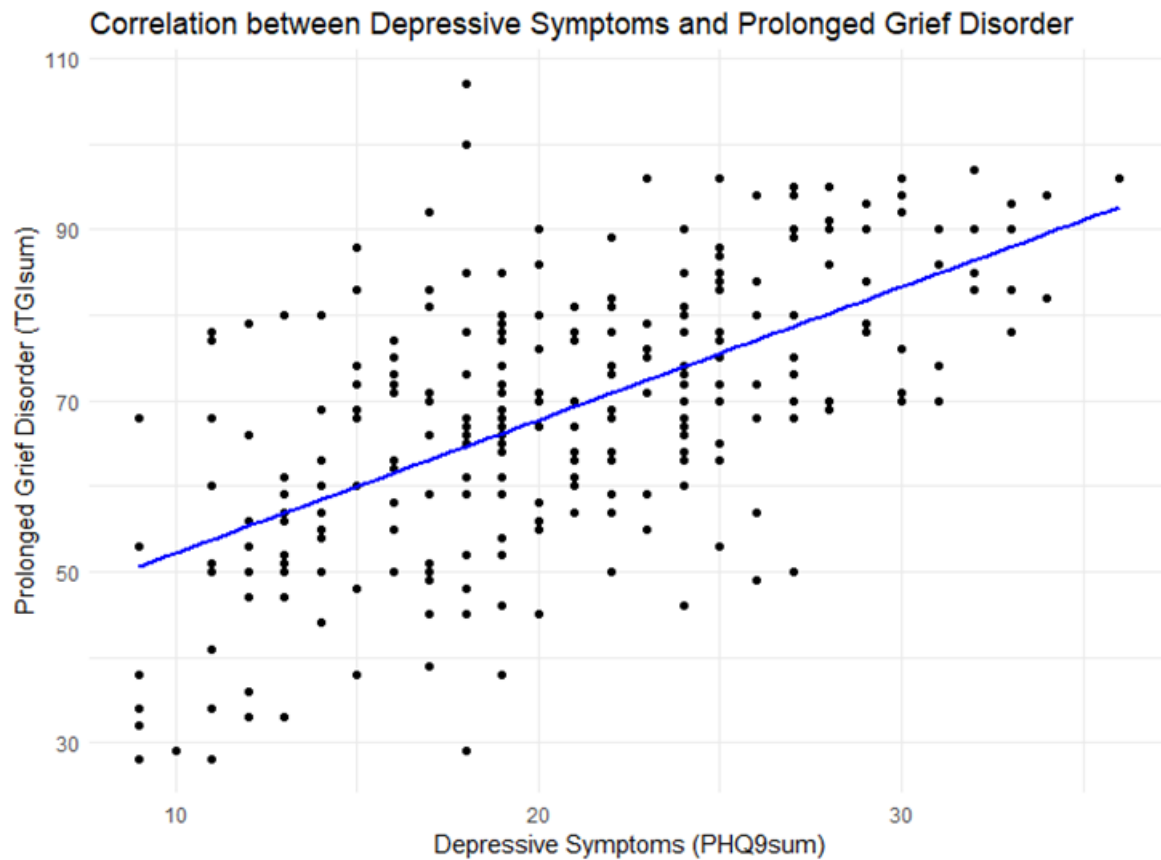
In the ICD-11 PGD dataset, the largest loadings on the first factor came from item 5 (.697) and item 3 (.759), the second factor was most heavily loaded by item 9 (.745) and item 10 (.643), and the third factor was primarily influenced by item 8 (.840). For a description of each item see Appendix C.

RQ 4: The Correlation Between Depressive Symptoms and Prolonged Grief Disorder

In the present sample, a positive correlation was found between depressive symptoms and prolonged grief disorder, $r(254) = .60, p < .001, 95\% CI [.51, .67]$. The correlation has been visualized in Figure 1.

Figure 1

The correlation between depressive symptoms and symptoms of prolonged grief disorder



Multiple Regression Analysis

A multiple regression analysis was performed to identify further predictor variables for depression. Examined variables include prolonged grief disorder (TGI-SR+), age, gender, type of loved one lost, and cause of death of the loved one. The model explained approximately 39.19% of the variance in depression severity, $R^2 = .39$, $F(4, 100) = 15.66$, $p < .001$. Among the predictors, prolonged grief disorder (TGI-SR+) significantly predicted depression severity, $p < .001$. Having lost a grandparent also had a marginally significant effect on depression, $p = .047$.

Discussion

This research explored the psychometric properties of the PHQ-9 and the TGI-SR+ in the grieving Ukrainian population. Additionally, it aimed to explore the relationship between Prolonged Grief Disorder and Depression. Further, it inquired about the potential relationship between the severity of depression and grief concerning the loss of a loved one in the Ukrainian people. Findings showed mixed results regarding the psychometric properties of a proposed one-factor structure of the TGI-SR+ in our sample. EFA suggested a better-

fitting three-factor model. For the PHQ-9, neither of the established one and two-factor models could be replicated. Again, EFA proposed a better-fitting three-factor model. Additional analysis showed a significant positive relationship between depression and PGD and significant differences in the severity of depressive symptoms of the study population regarding different types of loved ones lost.

The Psychometric Properties of the PHQ-9 in a Ukrainian Sample

In this study, the reliability of the PHQ-9 in assessing depressive symptoms among Ukrainians was found to be high, as evidenced by a strong internal consistency score ($\alpha = .86$). This means that the different items in the tool measured the same concept of depression consistently and accurately in the Ukrainian population. This goes in line with the findings of Shevlin et al. (2018) who could also demonstrate the good internal consistency of the scale in a Ukrainian sample ($\alpha = 0.91$).

However, both the commonly found one-factor structure (Ryan et al., 2013) nor the two-factor structure proposal of a somatic and a cognitive dimension (Beard et al., 2016) could be replicated in this study's sample. Instead, EFA suggested a three-factor model consisting of two emotional factors and a physical factor. The first emotional factor comprises items 1 (having little interest) and 2 (feeling down). The second emotional factor comprises items 6 (feeling bad about oneself), 7 (trouble concentrating) and 9 (suicide ideation). The physical factor comprises items 3 (sleeping problems), 4 (feeling tired) and 5 (loss of appetite).

In a subsequent Confirmatory Factor Analysis (CFA), the item “moving or speaking slowly” was removed from the model. This decision was based on the observation that this item did not significantly correlate with the other symptoms of depression in our study's sample. Our sample was predominantly composed of women, who, according to Ellgring et al. (1996), may express depressive symptoms differently from men, particularly regarding verbal communication. This could potentially explain the absence of strong associations for this item. However, it is noteworthy that this divergence did not seem to apply to the aspect of 'body posture', which is the second component of the removed item (Alghowinem et al., 2013).

The Relationship Between the Type of Loved One Lost and Depression

The second research question examined explicitly if the type of relationship with the deceased influences the severity of depressive symptoms. The findings indicate a significant difference in depressive scores between the different types of losses, with persons losing a partner exhibiting the highest scores of depression. This goes in line with the findings of

Zisook and Shuchter (1991), who demonstrated that the prevalence of depression in those who lost a spouse is prevalent and with a review of Stroebe et al. (2007), who demonstrated that the loss of a spouse is associated with more severe health outcomes, including depression, compared to other types of losses.

Other than expected, participants reporting the loss of a child in the present sample reported the lowest severity of depressive symptoms. This goes against the established literature which tends to emphasize the strong relationship between the loss of a child and depression (Wijngaards-de Meij et al., 2005). For example, Barrera et al. (2007) found that the loss of a child, especially if the relationship with the child was very intertwined, predicted both depression and complicated grief. Even if a relationship with the child who died could not have been built before its death (for example in cases of perinatal death), studies suggest the loss as both traumatic (Bennett et al., 2015) and as a predictor for depression (Boyle et al., 1996; Hughes & Riches, 2003). This study's finding that the loss of a child predicts significantly lower depressive scores than the loss of a partner is, therefore, striking.

One possible explanation for this phenomenon could be the dependence of the women in the sample on their deceased partners for financial support, as suggested by Married and Again (2015). Another potential explanation could be an unexplored aspect related to the lack of identification with a perinatally deceased child. The circumstances of the child's death, whether sudden infant death syndrome (SIDS), abortion, accident, or other causes, as well as the child's age at the time of death, may be influential factors. These potential relationships require further investigation in future studies.

The psychometric properties of the TGI-SR+

Lenferink et al., (2022) proposed a one-factor DSM-5-TR and a one-factor ICD-11 structure for the TGI-SR+ which demonstrated good internal consistency and temporal stability in their sample. These findings could not be replicated in the current study, with both models showing non-significant factor loadings. This suggests that the respective items do not load onto a single underlying factor in this context. Exploratory factor analysis (EFA) revealed that a three-factor model explained the most variance for both constructs within this study's sample.

There could be several reasons for this divergence. For instance, the constructs measured by the TGI-SR+ may be perceived or experienced differently in the Ukrainian cultural context compared to the original study population. In addition, it might be that the translation of the TGI-SR+ into Ukrainian led to subtle shifts in meaning that affected the factor structure. Alternatively, the items of the TGI-SR+ may be less distinct from another in

the Ukrainian context, leading to a more complex factor structure. This could be due to unique cultural, societal, or psychological factors present in the Ukrainian context that are not present in the populations studied by Lenferink et al. (2022).

Regardless of the exact reasons, these findings underline the need for more research on the psychometric properties of the TGI-SR+ in different cultural contexts. This could help to determine whether the observed deviations from the original one-factor structure are due to these cultural factors or reflect broader issues with the scale's construct validity.

The Relationship Between PGD and Depression

Finally, the last research question sought to investigate a potential correlation between depressive symptoms and symptoms of prolonged grief disorder. The present study established a moderate positive correlation between these variables which indicates that individuals who experienced more severe depressive symptoms were more likely to exhibit higher levels of prolonged grief.

This finding is consistent with previous research showing a relationship between depressive symptoms and prolonged grief (Kim & Jacobs, 1991). Depression seems to not only be more prevalent in those grieving prolonged but also tends to be more lasting (Zisook & DeVaul, 1983). In the case of the Russo-Ukrainian War, research conducted by Chudzicka-Czupała et al. (2022) found a high prevalence of depression and anxiety among Ukrainians directly affected by the war, reinforcing the link between intense stressors, like conflict, and both depressive and prolonged grief symptoms. Over 46% of Ukrainians in the study scored high for both conditions. This highlights that severe depressive symptoms often accompany higher levels of prolonged grief.

Limitations and Strengths

The following limitations and strengths of the study should be considered.

Limitations

This study, while contributing important findings to the understanding of grief and depression within the Ukrainian population, has several limitations that warrant discussion.

First, the sample drawn consisted predominantly of females and individuals in their early to middle adulthood. While this demographic distribution provided valuable insights into grief and depression within these groups, it does limit the generalizability of this study's findings to other demographics (Kukull & Ganguli, 2012). It is therefore, advisable to conduct further studies about depression and PGD in the bereaved Ukrainian population utilizing a more diverse sample. More targeted sampling efforts could combat the recruitment bias this study has experienced (Levy & Lemeshow, 2013). One way to do this could be by using

stratified sampling in future research. This method involves dividing the total population into distinct subgroups or "strata" based on a specific characteristic, in this case, gender. One could then randomly select individuals from each stratum in proportion to their representation in the total population. By employing stratified sampling, one could ensure a roughly equal number of males and females in the sample, thereby combatting the gender bias observed in the current study (Parsons, 2014).

Second, the nature of the study's recruitment strategy, which relied heavily on snowball sampling, might have led to some additional forms of sampling bias. Individuals more open to discussing their feelings, seeking support, or being more affected by their grief and depression may have been more likely to participate in the study (Heckman, 2013).

Lastly, the study relied exclusively on self-report measures, subject to recall bias and social desirability bias (Adams et al., 1999; Furnham et al., 1982). Future research could benefit from integrating other data types, such as clinical interviews or reports from close others, to corroborate self-report data. Additionally, the ability to conclude causality on the relationship between depression and grief may be hindered by the cross-sectional nature of this study. Longitudinal studies might be necessary to track PGD and depression in the sample more appropriately.

Strengths

Firstly, this is one of the first studies investigating the psychometric properties of the PHQ-9 and the TGI-SR+ in a sample of bereaved Ukrainians. This might aid both researchers and clinicians in understanding how these questionnaires can be utilized within this specific context, ultimately leading to better treatment outcomes.

Furthermore, this study contributes to understanding one of the major humanitarian crises of our time, the Russo-Ukrainian conflict. By discussing grief and depression in the context of bereaved Ukrainians, this study may help to shed some more light on the conflict and its adverse humanitarian implications. By probing the intersection of grief and depression in this context, this study underscores the psychological impacts of the conflict on the Ukrainian population, hence emphasizing the urgency for further research in this area.

Conclusion

This study aimed to examine the psychometric properties of the PHQ-9 and the TGI-SR+ among a Ukrainian population experiencing grief, as well as to investigate the relationship between Prolonged Grief Disorder (PGD) and depression, with a specific focus on the type of relationship between the loved person lost and its impact on depressive symptoms.

The findings demonstrated a robust internal consistency of the PHQ-9 in assessing depressive symptoms within the Ukrainian sample, supporting its applicability in this context. However, the traditional one- or two-factor structure was not replicated. Instead, EFA suggested a novel three-factor model. Additionally, the findings indicated that the type of loved one lost significantly influenced the severity of depressive symptoms, with the loss of a partner having the most severe impact.

The results concerning the TGI-SR+ were more varied, as this study could not confirm the traditional one-factor structure, prompting the need for further investigations regarding its psychometric properties within the Ukrainian population. Furthermore, a significant positive correlation between depression and PGD was observed, supporting a relationship between these constructs.

These findings have crucial implications for mental health care within Ukraine, particularly in relation to the ongoing conflict. They underscore the need for nuanced approaches to screening and treating depression and PGD within this population, specifically considering the influence of the type of loved one a bereaved lost. Furthermore, they call for additional research on the suitability and cultural adaptability of commonly used psychometric tools like the PHQ-9 and TGI-SR+ in novel populations. Lastly, the findings of this study serve as an urgent reminder of the psychological toll of conflict, emphasizing the necessity for conflict resolution and the provision of robust mental health support to those affected.

References

- Adams, A. S., Soumerai, S. B., Lomas, J., & Ross-Degnan, D. (1999). Evidence of self-report bias in assessing adherence to guidelines. *International Journal for Quality in Health Care*, 11(3), 187-192.
- Ahad, N. A., Yin, T. S., Othman, A. R., & Yaacob, C. R. (2011). Sensitivity of normality tests to non-normal data. *Sains Malaysiana*, 40(6), 637-641.
- Alghowinem, S., Goecke, R., Wagner, M., Parkerx, G., & Breakspear, M. (2013, September). Head pose and movement analysis as an indicator of depression. In 2013 Humaine Association Conference on Affective Computing and Intelligent Interaction (pp. 283288). IEEE.
- Aoun SM, Keegan O, Roberts A, Breen LJ. The impact of bereavement support on wellbeing: a comparative study between Australia and Ireland. *Palliative Care and Social Practice*. 2020;14. doi:10.1177/2632352420935132
- Aoyama, M., Miyashita, M., Masukawa, K., Morita, T., Kizawa, Y., Tsuneto, S., Shima, Y., & Akechi, T. (2021). Predicting models of depression or complicated grief among bereaved family members of patients with cancer. *Psycho-oncology*, 30(7), 11511159. <https://doi.org/10.1002/pon.5630>
- Ashouri, A., & Yousefi, S. (2023). Validation of the Persian Traumatic Grief Inventory- Self Report Plus (TGI-SR+) to Assess Prolonged Grief Severity. *Omega*, 302228231162730. Advance online publication. <https://doi.org/10.1177/00302228231162730>
- Barrera, M., D'Agostino, N. M., Schneiderman, G., Tallett, S., Spencer, L., & Jovcevska, V. (2007). Patterns of parental bereavement following the loss of a child and related factors. *Omega-Journal of Death and Dying*, 55(2), 145-167.
- Beard, C., Hsu, K.J., Rifkin, L.S., Busch, A.B., Bjorgvinsson, T., 2016. Validation of the PHQ-9 in a psychiatric sample. *J. Affect. Disord.* 193, 267–273. <https://doi.org/10.1016/j.jad.2015.12.075>
- Bennett, S. M., Litz, B. T., Lee, B. S., & Maguen, S. (2005). The Scope and Impact of Perinatal Loss: Current Status and Future Directions. *Professional Psychology: Research and Practice*, 36(2), 180–187. <https://doi.org/10.1037/0735-7028.36.2.180>
- Bērziņš, J. (2020). The Theory and Practice of New Generation Warfare: The Case of Ukraine and Syria. *The Journal of Slavic Military Studies*, 33:3, 355-380, DOI: 10.1080/13518046.2020.1824109

- Boyle, F. M., Vance, J. C., Najman, J. M., & Thearle, M. J. (1996). The mental health impact of stillbirth, neonatal death or SIDS: prevalence and patterns of distress among mothers. *Social science & medicine*, 43(8), 1273-1282.
- Brent, D., Melhem, N., Donohoe, M. B., & Walker, M. (2009). The incidence and course of depression in bereaved youth 21 months after the loss of a parent to suicide, accident, or sudden natural death. *The American journal of psychiatry*, 166(7), 786–794. <https://doi.org/10.1176/appi.ajp.2009.08081244>
- Cheung, A., Makhshvili, N., Javakhishvili, J. et al. (2019). Patterns of somatic distress among internally displaced persons in Ukraine: analysis of a cross-sectional survey. *Soc Psychiatry Psychiatr Epidemiol* 54, 1265–1274. <https://doi.org/10.1007/s00127-019-01652-7>
- Clayton, P. J. (1990). Bereavement and depression. *The Journal of clinical psychiatry*.
- Chudzicka-Czupala, A., Hapon, N., Chiang, SK. et al. Depression, anxiety and post-traumatic stress during the 2022 Russo-Ukrainian war, a comparison between populations in Poland, Ukraine, and Taiwan. *Sci Rep* 13, 3602 (2023). <https://doi.org/10.1038/s41598-023-28729-3>
- Eisma, M. C., Stroebe, M. S., Schut, H. A., Stroebe, W., Boelen, P. A., & van den Bout, J. (2013). Avoidance processes mediate the relationship between rumination and symptoms of complicated grief and depression following loss. *Journal of Abnormal Psychology*, 122(4), 961.
- Ellgring, H., Scherer, K.R. Vocal indicators of mood change in depression. *J Nonverbal Behav* 20, 83–110 (1996). <https://doi.org/10.1007/BF02253071>
- Fontana, A., Rosenheck, R., & Horvath, T. (1997). Social support and psychopathology in the war zone. *The Journal of nervous and mental disease*, 185(11), 675-681.
- Furnham, A., & Henderson, M. (1982). The good, the bad and the mad: Response bias in self report measures. *Personality and Individual Differences*, 3(3), 311-320.
- Gharaibeh, B. (2019). Prevalence of Depression and its Associated Factors among Jordanian Diabetic Foot Patients. ResearchGate. https://www.researchgate.net/publication/332466767_Prevalence_of_Depression_and_its_Associated_Factors_among_Jordanian_Diabetic_Foot_Patients
- Han, H., Noh, J. W., Huh, H. J., Huh, S., Joo, J. Y., Hong, J. H., & Chae, J. H. (2017). Effects of Mental Health Support on the Grief of Bereaved People Caused by Sewol Ferry Accident. *Journal of Korean medical science*, 32(7), 1173–1180. <https://doi.org/10.3346/jkms.2017.32.7.1173>

- Haneveld, J., Rosner, R., Vogel, A., Mäkitalo, S., Trembl, J., Steil, R., Rief, W., & Comtesse, H. (2022). Introduction and evaluation of a therapeutic adherence and competence scale for grief-focused cognitive behavioural therapy. *European journal of psychotraumatology*, 13(1), 2079873. <https://doi.org/10.1080/20008198.2022.2079873>
- Heckman, J. (2013). Sample selection bias as a specification error. *Applied Econometrics*, 31(3), 129-137.
- Hughes, P., & Riches, S. (2003). Psychological aspects of perinatal loss. *Current Opinion in Obstetrics and Gynecology*, 15(2), 107-111.
- Javanbakht, A. (2022). Addressing war trauma in Ukrainian refugees before it is too late. *European Journal of Psychotraumatology*, 13(2), 2104009.
- Karam, E. G., Howard, D. B., Karam, A. N., Ashkar, A., Shaaya, M., Melhem, N., & El Khoury, N. (1998). Major depression and external stressors: the Lebanon Wars. *European Archives of Psychiatry and Clinical Neuroscience*, 248, 225-230.
- Kennedy, S. H. (2022). Core symptoms of major depressive disorder: relevance to diagnosis and treatment. *Dialogues in clinical neuroscience*.
- Kersting, A., Brähler, E., Glaesmer, H., & Wagner, B. (2011). Prevalence of complicated grief in a representative population-based sample. *Journal of affective disorders*, 131(1-3), 339–343. <https://doi.org/10.1016/j.jad.2010.11.032>
- Kim, K., & Jacobs, S. (1991). Pathologic grief and its relationship to other psychiatric disorders. *Journal of Affective Disorders*, 21(4), 257–263. [https://doi.org/10.1016/0165-0327\(91\)90005-d](https://doi.org/10.1016/0165-0327(91)90005-d)
- Kokou-Kpolou, C. K., Lenferink, L. I. M., Brunnet, A. E., Park, S., Megalakaki, O., Boelen, P. A., & Cénat, J. M. (2022). The ICD-11 and DSM-5-TR prolonged grief criteria: Validation of the Traumatic Grief Inventory-Self Report Plus using exploratory factoranalysis and item response theory. *Clinical Psychology & Psychotherapy*, 29(6), 1950–1962. <https://doi.org/10.1002/cpp.2765>
- Kokou-Kpolou, K., Megalakaki, O., & Nieuviarts, N. (2018). Persistent depressive and grief symptoms for up to 10 years following perinatal loss: Involvement of negative cognitions. *Journal of affective disorders*, 241, 360-366.
- Komischke-Konnerup, K. B., Zachariae, R., Johannsen, M., Nielsen, L. D., & O'Connor, M. (2021). Co-occurrence of prolonged grief symptoms and symptoms of depression, anxiety, and posttraumatic stress in bereaved adults: A systematic review and meta analysis. *Journal of Affective Disorders Reports*, 4, 100140.

- Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: validity of a brief depression severity measure. *Journal of general internal medicine*, 16(9), 606-613.
- Krishnan, A. (2022). Fifth Generation Warfare, Hybrid Warfare, and Gray Zone Conflict: A Comparison. *Journal of Strategic Security*, 15(4), 14–31.
<https://www.jstor.org/stable/48707883>
- Kristensen, P., Weisæth, L., & Heir, T. (2012). Bereavement and mental health after sudden and violent losses: A review. *Psychiatry: Interpersonal & Biological Processes*, 75(1), 76-97.
- Kukull, W. A., & Ganguli, M. (2012). Generalizability: the trees, the forest, and the low hanging fruit. *Neurology*, 78(23), 1886-1891.
- Lenferink, L. I. M., Eisma, M. C., Smid, G. E., De Keijser, J., & Boelen, P. A. (2022). Valid measurement of DSM-5 persistent complex bereavement disorder and DSM-5-TR and ICD-11 prolonged grief disorder: The Traumatic Grief Inventory-Self Report Plus (TGI-SR+). *Comprehensive Psychiatry*, 112, 152281.
<https://doi.org/10.1016/j.comppsy.2021.152281>
- Lenferink, L. I., Franzen, M., Klooster, P. M. T., Knaevelsrud, C., Boelen, P. A., & Heeke, C. (2023). The Traumatic Grief Inventory-Clinician Administered: A psychometric evaluation of a new interview for ICD-11 and DSM-5-TR prolonged grief disorder severity and probable caseness. *Journal of Affective Disorders*, 330, 188–197.
<https://doi.org/10.1016/j.jad.2023.03.006>
- Levy, P. S., & Lemeshow, S. (2013). *Sampling of populations: methods and applications*. John Wiley & Sons.
- Li, J., Tendeiro, J. N., & Stroebe, M. (2019). Guilt in bereavement: Its relationship with complicated grief and depression. *International Journal of Psychology*, 54(4), 454-461.
- Married, F. S. T., & Again, T. S. (2005). Economic and practical adjustments to late life spousal loss. *Spousal bereavement in late life*, 167.
- Morina, N. (2011). Rumination and avoidance as predictors of prolonged grief, depression, and posttraumatic stress in female widowed survivors of war. *The Journal of nervous and mental disease*, 199(12), 921-927.
- Morina, N., Rushiti, F., Salihu, M., & Ford, J. D. (2010). Psychopathology and well-being in civilian survivors of war seeking treatment: A follow-up study. *Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice*, 17(2), 79-86.

- Ngoc, T. L. H., Le, M. T., Nguyen, H. T., Vo, H., Le, N., Tang, L. N. P., Tran, T., & Van Le, T. (2021). Patient Health Questionnaire (PHQ-9): A depression screening tool for people with epilepsy in Vietnam. *Epilepsy & Behavior*, 125, 108446. <https://doi.org/10.1016/j.yebeh.2021.108446>
- Opiola, W., Czepil, B., Dębicki, M., Ganowicz, E., Kajta, J., Kovály, K., ... & Pidgrushniy, G. (2022). War and politics. The 2022 Russian invasion of Ukraine and refugee crisis on the eastern EU border from the perspective of border studies. *Border and Regional Studies*, 10(1), 7-22.
- Osokina, O., Silwal, S., Bohdanova, T., Hodes, M., Sourander, A., & Skokauskas, N. (2022). Impact of the Russian Invasion on Mental Health of Adolescents in Ukraine. *Journal of the American Academy of Child and Adolescent Psychiatry*, 62(3), 335–343. <https://doi.org/10.1016/j.jaac.2022.07.845>
- Parker, G., McCraw, S., & Paterson, A. (2015). Clinical features distinguishing grief from depressive episodes: A qualitative analysis. *Journal of Affective Disorders*, 176, 43–47.
- Parsons, V. L. (2014). Stratified sampling. *Wiley StatsRef: Statistics Reference Online*, 1-11.
- Prigerson, H. G., Horowitz, M. J., Jacobs, S. C., Parkes, C. M., Aslan, M., Goodkin, K., Raphael, B., Marwit, S. J., Wortman, C., Neimeyer, R. A., Bonanno, G. A., Block, S. D., Kissane, D., Boelen, P., Maercker, A., Litz, B. T., Johnson, J. G., First, M. B., & Maciejewski, P. K. (2009). Prolonged grief disorder: Psychometric validation of criteria proposed for DSM-V and ICD-11. *PLoS medicine*, 6(8), e1000121. <https://doi.org/10.1371/journal.pmed.1000121>
- RStudio Team. (2021).
- Rådestad, I., Steineck, G., Nordin, C., & Sjögren, B. (1996). Psychological complications after stillbirth--influence of memories and immediate management: population based study. *BMJ (Clinical research ed.)*, 312(7045), 1505–1508. <https://doi.org/10.1136/bmj.312.7045.1505>
- Ryan, T.A., Bailey, A., Fearon, P., King, J., 2013. Factorial invariance of the patient health questionnaire and generalised anxiety disorder questionnaire. *Brit. J. Clin. Psychol.* 52 (4), 438–449. <https://doi.org/10.1111/bjc.12028>.
- Sadler, G. R., Lee, H. C., Lim, R. S. H., & Fullerton, J. (2010). Recruitment of hard-to-reach population subgroups via adaptations of the snowball sampling strategy. *Nursing & health sciences*, 12(3), 369-374.
- Shear, K., Monk, T., Houck, P., Melhem, N., Frank, E., Reynolds, C., & Sillowash, R. (2007). An attachment-based model of complicated grief including the role of

- avoidance. *European archives of psychiatry and clinical neuroscience*, 257(8), 453#461. <https://doi.org/10.1007/s00406-007-0745-z>
- Shear, M. K. (2012). Getting straight about grief. *Depression and anxiety*.
- Shevlin, M., Hyland, P., Vallières, F., Bisson, J. I., Makhshvili, N., Javakhishvili, J. D., Shpiker, M., & Roberts, B. (2018). A comparison of DSM-5 and ICD-11 PTSD prevalence, comorbidity and disability: an analysis of the Ukrainian Internally Displaced Person's Mental Health Survey. *Acta Psychiatrica Scandinavica*, 137(2), 138–147. <https://doi.org/10.1111/acps.12840>
- Stammel, N., Heeke, C., Bockers, E., Chhim, S., Taing, S., Wagner, B., & Knaevelsrud, C. (2013). Prolonged grief disorder three decades post loss in survivors of the Khmer Rouge regime in Cambodia. *Journal of affective disorders*, 144(1-2), 87-93.
- Stroebe, W., & Stroebe, M. S. (1987). Bereavement and health: The psychological and physical consequences of partner loss.
- Stroebe, M., Schut, H., & Stroebe, W. (2007). Health outcomes of bereavement. *Lancet* (London, England), 370(9603), 1960–1973. [https://doi.org/10.1016/S01406736\(07\)61816-9](https://doi.org/10.1016/S01406736(07)61816-9)
- S2 Underground. (2022, March 30). 5th Generation Warfare: History, Modern Context, and (Some) Solutions [Video file]. Retrieved from <https://www.youtube.com/watch?v=0p10G1m3ZfU>
- Ukraine Refugee Situation. (n.d.). <https://data2.unhcr.org/en/situations/ukraine>
- Wang, W., Bian, Q., Zhao, Y., Li, X., Wang, W., Du, J., Zhang, G., Zhou, Q., & Zhao, M. (2014). Reliability and validity of the Chinese version of the Patient Health Questionnaire (PHQ-9) in the general population. *General Hospital Psychiatry*, 36(5), 539–544. <https://doi.org/10.1016/j.genhosppsy.2014.05.021>
- West, M., & George, C. (2002). Attachment and dysthymia: The contributions of preoccupied attachment and agency of self to depression in women. *Attachment & Human Development*, 4(3), 278-293.
- Wijngaards-de Meij, L., Stroebe, M., Schut, H., Stroebe, W., van den Bout, J., van der Heijden, P., & Dijkstra, I. (2005). Couples at Risk Following the Death of Their Child: Predictors of Grief Versus Depression. *Journal of Consulting and Clinical Psychology*, 73(4), 617–623. <https://doi.org/10.1037/0022-006X.73.4.617>
- Woldetensay, Y. K., Belachew, T., Tesfaye, M., Spielman, K., Biesalski, H. K., Kantelhardt, E. J., & Scherbaum, V. (2018). Validation of the Patient Health Questionnaire (PHQ

9) as a screening tool for depression in pregnant women: Afaan Oromo version. *PloS one*, 13(2), e0191782. <https://doi.org/10.1371/journal.pone.0191782>

Yeung, A., Fung, F., Yu, S. C., Vorono, S., Ly, M., Wu, S., & Fava, M. (2008). Validation of the Patient Health Questionnaire-9 for depression screening among Chinese Americans. *Comprehensive psychiatry*, 49(2), 211–217. <https://doi.org/10.1016/j.comppsy.2006.06.002>

Appendix A
Recruitment Poster

Figure A1

English Recruitment Poster

FIRST AID IN MOURNING FOR UKRAINIANS

Would you like to know more about your own reactions to a loss of a loved one?
Then please complete the online questionnaire to learn more about your grief process.

For more information go to the website of the project
www.Вимірюваннягоря.com

REQUIREMENTS

- Being Ukrainian
- Aged 18 years or older
- Having lost a loved one (family member, friend, partner)

FOR QUESTIONS REGARDING THE RESEARCH CONTACT
M.L.F.RISPAHOYOS@UTWENTE.NL

Scan the QR code and participate in our research

UNIVERSITY OF TWENTE.  Utrecht University 

Figure A2*Ukrainian Recruitment Poster*

**ПЕРША ДОПОМОГА ПІД ЧАС
ЖАЛОБИ ДЛЯ УКРАЇНЦІВ**

Ви втратили когось близького? Чи хотіли би Ви знати більше про свою реакцію? Тоді, заповніть, будь ласка, онлайн опитувальник. Більш детальну інформацію Ви можете знайти на сайті www.Вимірюваннягоря.com

ВИМОГИ

- Мати українське громадянство
- Вік від 18 років
- Втрата близької людини (партнер, член родини або друг)

ЯКЩО У ВАС Є ПИТАННЯ СТОСОВНО ДОСЛІДЖЕННЯ, ЗВЕРТАЙТЕСЬ ДО
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ВІДСКАНУЙТЕ QR-КОД ТА ПРИЙМІТЬ
УЧАСТЬ У НАШОМУ ДОСЛІДЖЕННІ



UNIVERSITY OF TWENTE.  Utrecht University 

Appendix B

Grief Monitor Categories

Green category (22-47 points)

You currently score between 22-47 points. This puts you in the green category.

Sometimes you experience emotional pain or other emotional reactions to the loss of your loved one. But this does not significantly interfere with your everyday life. Experiencing grief reactions occasionally is very common and healthy response to loss. You do not seem to need any professional help with the grieving process right now. Of course, you may check the general information on grief on this website.

Do you notice that your psychological complaints increase over time? Please fill out the questionnaire again.

Yellow category (48-70 points)

You currently score between 48-70 points. This puts you in the yellow category.

You sometimes experience several grief reactions. At this moment, it seems that there is no need to seek professional help for your grief. You may check the general information on grief on this website. If you do feel that you need help (because you notice an increase in your grief reactions) you can contact your family doctor for advice. You may also consider having some (online) counseling sessions with a counselor or psychologist.

Did the loss occur less than 12 months ago? Please fill out the questionnaire again in a while.

Or do you notice that you have other complaints that were not addressed in the questionnaire? Please contact your family doctor for advice.

Orange category (71 - 91 points)

You currently score between 71 - 91 points. This puts you in the orange category.

You often experience different types of grief reactions. These cause suffering and may interfere with your functioning. You may likely benefit from professional help from a psychologist. If you feel no need for professional psychological help, we advise you to consider having some (online) counseling sessions with a counselor or psychologist. It is also wise to consult your family doctor to share how you feel now and discuss whether help is needed.

Did the loss occur less than 12 months ago? Please fill out the questionnaire again in a while.

Red category (92-110 points)

You currently score between 92-110 points. This puts you in the red category. There are many grief reactions that you experience almost always. This likely cause significant distress and likely interferes with your functioning. We strongly advise you to consider to search for

options to obtain professional psychological help. It is also wise to consult your family doctor to share how you feel now and discuss whether help is needed. Did the loss occur less than 12 months ago? Please fill out the questionnaire again in a while.

Appendix C

Items of the TGI-SR+ and the PHQ-9

TGI-SR+

English

1. I had intrusive thoughts or images related to the person who died.
2. I experienced intense emotional pain, sadness, or pangs of grief.
3. I found myself longing or yearning for the person who died.
4. I experienced confusion about my role in life or a diminished sense of self
5. I had trouble accepting the loss.
6. I avoided places, objects, or thoughts that reminded me that the person I lost has died.
7. It was hard for me to trust others
8. I felt bitterness or anger related to his/her death
9. I felt that moving on (e.g., making new friends, pursuing new interests) was difficult for me.
10. I felt emotionally numb.
11. "I felt that life is unfulfilling or meaningless without him/her."
12. I felt stunned, shocked, or dazed by his/her death
13. I noticed significant reduction in social, occupational, or other important areas of functioning (e.g., domestic responsibilities) as a result of his/her death.
14. I had intrusive thoughts and images associated with the circumstances of his/her death
15. I experienced difficulty with positive reminiscing about the lost person
16. I had negative thoughts about myself in relation to the loss (e.g., thoughts about self-blame).
17. I had a desire to die in order to be with the deceased
18. I felt alone or detached from other individuals
19. It felt unreal that he/she is dead
20. I put an intense blame on others because of his/her death.
21. "It felt as if a part of me has died along with the deceased."
22. I had difficulties experiencing positive feelings.

Ukrainian

1. В мене були небажані та раптові думки або образи пов'язані з людиною, що померла
2. Я відчував(ла) сильний емоційний біль, сум або страждав(ла) від напливів горя

3. Я тужив (ла) та відчував(ла) скорботу за померлим
4. Я відчував(ла) невизначеність щодо своєї ролі в житті або відчував(ла) втрату власного Я.
5. Мені було важко прийняти втрату
6. Я унікав(ла) місць, предметів або думок, що нагадують мені про те що він/вона помер(ла)
7. Мені було важко довіряти іншим.
8. Я відчував(ла) гіркоту або гнів через його/її смерть
9. Я відчував, що жити далі (наприклад, знаходити нових друзів, шукати нові інтереси) мені важко
10. Я відчував(ла) себе емоційно онімілим(ою)
11. Я відчував(ла), що життя втратило сенс безглузде або порожнє без нього/неї.
12. Я був(ла) приголомшений(а), шокований(а) або вражений(а) його/її смертю.
13. Я помітив(ла), що моє функціонування (в соціальній, професійній та інших важливих сферах життя) було серйозно порушено в результаті його/її смерті
14. У мене були небажані та раптові думки і образи, пов'язані з обставинами його/її смерті
15. У мене були труднощі з позитивними спогадами про покійного(у).
16. В мене були негативні думки про себе, у зв'язку з втратою (наприклад, самозвинувачення).
17. В мене виникало бажання померти, щоб бути з покійним.
18. Я відчував(ла) себе самотнім(ньою) та відірваним(ною) від інших людей.
19. Його/ її смерть здавалась мені нереальною
20. Я дуже сильно звинувачую інших через його/її смерть
21. В мене було відчуття, ніби частина мене померла разом із покійним
22. Мені було важко переживати позитивні почуття.

PHQ-9

English

1. Little interest or pleasure in doing things
2. Feeling down, depressed, or hopeless
3. Trouble falling or staying asleep, or sleeping too much
4. Feeling tired or having little energy
5. Poor appetite or overeating

6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down
7. Trouble concentrating on things, such as reading the newspaper or watching television
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual
9. Thoughts that you would be better off dead or of hurting yourself in some way

Ukrainian

1. Дуже низька зацікавленість або задоволення від звичайних справ
2. Поганий настрій, пригніченість або відчуття безпорадності
3. Труднощі із засинанням, переривчастий або занадто тривалий сон
4. Почуття втоми або знесилення (занепад сил)
5. Поганий апетит чи навпаки – переїдання
6. Погані (негативні) думки про себе. Ви вважали себе невдахою або розчаровані в собі, або вважали, що не виправдали сподівань своєї родини
7. Труднощі концентрації уваги (наприклад, зосередитися на читанні газети чи перегляді телепередач)
8. Ваші рухи або мова були настільки повільними, що оточуючі могли це помітити. Або навпаки, Ви були настільки метушливі або збуджені, що рухалися більше, ніж зазвичай
9. Думки про те, що Вам краще було б померти або про те, щоб заподіяти собі шкоду будь-яким чином