

# Prevalence and correlates of ICD-11 prolonged grief disorder among adults living in Ukraine during the war with Russia

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## Abstract

**Background:** Although high rates of bereavement are evident in war-affected populations, no study has investigated the prevalence and correlates of probable ICD-11 prolonged grief disorder (PGD) under these circumstances.

**Methods:** Participants were 2050 adults who participated in a nationwide survey exploring the effects of the Ukraine-Russia war on the daily lives and mental health of Ukrainian people.

**Results:** Of the total sample, 87.7% ( $n = 1797$ ) of people indicated a lifetime bereavement. In the full sample, 11.4% met the diagnostic requirements for probable ICD-11 PGD, and amongst those with a lifetime bereavement, the conditional rate of probable ICD-11 PGD was 13.0%. Significant risk factors of ICD-11 PGD included the recent loss of a loved one (6 months to a year ago), being most affected by a partner or spouse's death, loved one dying in the war, no recent contact with the deceased prior to their death, and meeting depression and anxiety diagnostic requirements.

**Conclusion:** The study reveals that a significant percentage of Ukrainian bereaved individuals have probable ICD-11 PGD, and identifying risk factors, particularly war-related losses, will aid in the development of intervention and prevention programs for bereaved adults.

## KEYWORDS

grief, international classification of diseases, prevalence, prolonged grief disorder, risk factors, war

## 1 | INTRODUCTION

Armed conflicts and wars represent "...social determinants of death, dying, and grief".<sup>1</sup> A present-day example of the tremendous loss and devastation caused by war is Russia's war on Ukraine. The United Nations estimates

that at least 10,000 people in Ukraine have died since the February 2022 invasion<sup>2</sup>; however, when military casualties are taken into consideration, this number will be much higher. Population-based studies suggest that approximately 60%–80% of adults will have a lifetime bereavement.<sup>3–5</sup> According to data from a recent

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telephone survey of 2013 Ukrainian residents, 63% reported having lost at least one close friend or relative as a result of the Russian invasion.<sup>6</sup> Even in times of war, life continues, and people suffer bereavements completely unrelated to the conflict. Consequently, it is likely that a very large proportion of the Ukrainian population has experienced some type of bereavement.

While most individuals can adjust to the grief that follows bereavement,<sup>7,8</sup> a significant minority endure protracted and debilitating grief reactions.<sup>9</sup> As a result, a new grief-specific diagnosis, prolonged grief disorder (PGD), was included in the most recent version of the International classification of diseases (ICD-11).<sup>10</sup> PGD is defined by “core” symptoms of longing for the deceased and persistent cognitive preoccupation with the deceased, and “associated” symptoms reflecting intense emotional pain such as sadness, anger, guilt, and difficulty accepting the loss. Symptoms must persist for at least 6 months after bereavement and cause significant impairment in functioning. Additionally, the period of grieving must persist for an atypically long period of time relative to an individual's social, cultural, or religious norms.<sup>10</sup> While ICD-11 PGD's prevalence and correlates have been studied in a range of populations, such as those seeking treatment,<sup>11</sup> bereaved children,<sup>12</sup> and nationally representative samples of bereaved adults,<sup>1,13,14</sup> no study has examined ICD-11 PGD in an active war-affected population. This is particularly important since the core principle underpinning the ICD-11 is to ensure the clinical utility and global applicability of mental disorders.<sup>15</sup>

Consequently, the current study sought to determine the prevalence and correlates of ICD-11 PGD in a nationwide sample of adults living in Ukraine. Specifically, the current study sought to determine (i) what proportion of the general adult population of Ukraine has been bereaved, (ii) what proportion meet diagnostic requirements for probable PGD, (iii) what the conditional rate of PGD is amongst those that are bereaved, and (iv) what demographic, mental health, and bereavement-related factors (e.g., time since death, relationship to the deceased, nature of the death) are associated with meeting diagnostic requirements for PGD.

## 2 | METHODS

### 2.1 | Participants and procedures

This study is based on data collected as part of the “The Mental Health of Parents and Children in Ukraine Study: 2023 Follow-up” study which seeks to understand the effects of Russia's war on the daily lives and mental health of Ukrainian adults and children. Previous

### Significant Outcomes

- Almost nine-in-ten (87.7%) people in Ukraine have been bereaved, and 13.0% of these people met diagnostic requirements for probable ICD-11 PGD.
- People who were bereaved because of the war were three times more likely than those reporting a bereavement due to anticipated natural-causes to meet diagnostic requirements for probable PGD.
- Risk factors for PGD included less time since bereavement, being most affected by partner or spouse's death, a loved one dying in the war, contact with the deceased prior to their death, and meeting depression and anxiety diagnostic requirements.

### Limitations

1. The inability to recruit participants from conflict-affected regions or Russian-occupied territories may have underestimated the true rate of bereavement in the population.
2. The cross-sectional nature of the data prohibits any causal inferences.

research includes a discussion of the original survey.<sup>16,17</sup> Data for the current study were collected online between September 7th and 18th, 2023, by the survey company TGM Research. Participants were recruited from an existing panel of research participants that was, pre-war, nationally representative based on the most recent Ukrainian census data. We used non-probability, quota sampling methods to construct a sample that was as representative of the adult population of Ukraine as possible given the current circumstances. Inclusion criteria were being aged 18 years or older at the time of the survey, currently living in Ukraine, and capable of completing the survey in Ukrainian. Quota variables used to construct the sample were sex, age, and region of Ukraine. Table 1 presents the targeted sex, age, and regional quotas from the available census information alongside the actual composition of the sample.

In total, we collected responses from 2050 people. Ethical approval for the project was obtained by the first author from the SI Institute of Psychiatry, Forensic Psychiatric Examination and Drug Monitoring of the Ministry of Health of Ukraine. Detailed demographic information is presented in Table 2. Further information on procedures are included in S1.

**TABLE 1** Comparison between census data and sample composition across the three quota variables for sample selection.

	Census figures	Sample composition
<b>Sex</b>		
Male	50.0%	51.7%
Female	50.0%	48.3%
<b>Age</b>		
18–29	16.0%	20.8%
30–39	21.0%	25.2%
40–49	19.0%	23.2%
50–59	17.0%	19.0%
60 and older	26.0%	11.8%
<b>Region</b>		
Western Ukraine	26.0%	24.3%
North Ukraine	19.0%	22.0%
Central Ukraine	14.0%	13.5%
Eastern Ukraine	18.0%	15.6%
South Ukraine	23.0%	24.7%

## 2.2 | Measures

### 2.2.1 | Prolonged grief disorder

The International grief questionnaire (IGQ)<sup>13</sup> is a brief self-report measure of ICD-11 PGD. Participants were instructed to indicate how bothered they have been by each of 5 symptoms in the last week using a 5-point Likert scale with responses ranging from 0 (“Not at all”) to 4 (“Extremely”). An additional item assessed the degree to which symptoms exceed social, cultural, or religious norms and three response options are provided including “no,” “yes,” and “I don’t know.” Finally, a question assessed functional impairment with “yes” or “no” response options. The IGQ was used to generate severity scores by summing the symptom items, and to identify participants meeting diagnostic requirements for probable PGD. Possible scores range from 0 to 20, with higher scores indicating greater symptom severity. To meet diagnostic requirements, the loss must have occurred 6 months ago or longer, at least one of the two “core” symptoms must be present, at least one of the three “associated” symptoms must be present, the participant must have responded “yes” or “I don’t know” to the question relating to exceeding the expected cultural, social, or religious norms, and functional impairment must be present. The internal reliability of the IGQ scores in the current study was excellent ( $\alpha = 0.86$ ).

**TABLE 2** Sociodemographic information for the sample ( $N = 2050$ ).

	%	<i>n</i>
<b>Sex</b>		
Males	51.7	1059
Females	48.3	991
<b>Age</b>		
18–29	20.8	426
30–39	25.2	517
40–49	23.2	475
50–59	19.0	390
60 and older	11.8	242
Born in Ukraine (or USSR)	92	1885
<b>Current living location in Ukraine</b>		
Western region	24.3	498
Northern region	22.0	450
Central region	13.5	277
Eastern region	15.6	319
Southern region	24.7	506
Life disrupted by 2014 invasion	42.2	866
Forced displacement by 2022 invasion	27.7	568
<b>Living area</b>		
Urban area	81.1	1662
Rural area	18.9	388
<b>Type of living accommodation</b>		
Apartment	64.1	1314
House	32.9	674
Hostel, hotel, collective accommodation center, or other form of emergency accommodation	3.0	62
<b>Marital status</b>		
Single	22.6	463
In a relationship but not living with a partner	4.1	84
In a relationship and living with a partner	10.7	219
Married	50.1	1027
Separated but still legally married	0.7	14
Divorced	8.3	171
Widowed	3.5	72
Have children	69.5	1425
<b>Highest education level</b>		
Completed mandatory schooling	2.8	58
Completed general/secondary schooling	10.9	223
Completed vocational school	28.4	582
Completed university	57.9	1187
<b>Employment status</b>		
Full-time employed	47.3	969
Part-time employed	19.6	401
Temporarily unemployed due to the war	7.8	159
Long-term unemployed	9.1	187
Student	3.5	72
Retired	10.3	211
Disabled and unable to work	2.5	51

## 2.3 | Other predictors

### 2.3.1 | Loss-related variables

Loss-related variables included time since bereavement (1 = within the last 6 months, 2 = 6 months to a year ago, 3 = 1 to 2 years ago, 4 = 2 to 3 years ago, 5 = 3 to 5 years ago, 6 = 6 to 10 years ago, 7 = more than 10 years ago). Because PGD status requires experiencing bereavement more than 6 months, the first category was redundant. Other loss-related variables included nature of the death (1 = anticipated natural death, 2 = unexpected natural death, 3 = sudden unnatural death, 4 = suicide, 5 = died in the war, and 6 = other), contact with the deceased in the year prior to their death (1 = every day, 2 = almost every day, 3 = several times a week, 4 = several times a month, 5 = a few times in the year, 6 = not at all during that year), and the death that the bereaved was most affected by (1 = child, 2 = partner or spouse, 3 = parent, 4 = brother or sister, 5 = grandparent, 6 = uncle or aunt, 7 = cousin, 8 = niece or nephew, 9 = close friend, 10 = colleague, 11 = acquaintance). For the main analyses, the death that the bereaved was most affected by variable was recoded into a six-category variable due to low endorsement of some losses (i.e., <3.5% of sample) (1 = child, 2 = partner or spouse, 3 = parent, 4 = grandparent, 5 = close friend, 6 = other).

## 2.4 | Mental health variables

### 2.4.1 | Generalized anxiety disorder (GAD)

The International Anxiety Questionnaire (IAQ)<sup>18</sup> is an eight-item self-report measure which assesses ICD-11 GAD. Participants were instructed to indicate how often they had been bothered by each of the symptoms over the last several months on a five-point Likert scale with responses ranging from 0 (“Never”) to 4 (“Every day”). The IAQ can be used to generate severity scores and to identify participants meeting clinical caseness. Possible scores range from 0 to 32, with higher scores indicating greater symptom severity. To meet diagnostic requirements, at least one core symptom (i.e., items 1 or 2) and a total of 4 or more symptoms must be endorsed (endorsement is Likert score  $\geq 3$ ). An additional item is included enquiring about functional impairment associated with symptoms, and this must be answered “Yes” to qualify for diagnosis. The internal

reliability of the IAQ in the current study was excellent ( $\alpha = 0.93$ ).

### 2.4.2 | Depression

The International Depression Questionnaire (IDQ)<sup>18</sup> is a nine-item self-report measures which assesses ICD-11 single-episode depression. Participants were instructed to indicate how often they have been bothered by each of the symptoms over the last 2 weeks using a five-point Likert scale with responses ranging from 0 (“Never”) to 4 (“Every day”). Possible scores range from 0 to 36, with higher scores indicating greater symptom severity. To meet diagnostic requirements, at least one core symptom (i.e., items 1 or 2), and five or more symptoms must be endorsed (endorsement is Likert score  $\geq 3$ ). An additional item enquires about functional impairment associated with symptoms, and this must be answered “Yes” to qualify for diagnosis. The internal reliability of the IDQ in the current study was excellent ( $\alpha = 0.93$ ).

### 2.4.3 | Demographic variables

Demographic predictors included age (measured in years), sex (0 = male, 1 = female), and being in a committed relationship (1 = single, 2 = in a relationship but not living with partner, 3 = in a relationship and living with partner, 4 = married, 5 = separated, but still legally married, 6 = divorced, and 7 = widowed). The latter variable was recoded into a binary variable by collapsing options 1, 5, 6, and 7 into a single category (0 = not in a committed relationship, 1 = in a committed relationship).

## 2.5 | Analytic plan

Descriptive statistics for all bereavement-related variables were reported, and the proportion of participants meeting diagnostic requirements for probable PGD was reported across all levels of the bereavement-related variables. A binary logistic regression analysis was conducted to examine the associations between the demographic, loss-related, and mental health variables, and meeting diagnostic requirements for probable PGD. All predictors were added to the model simultaneously to assess their unique associations with probable PGD, and these results are reported as adjusted odds ratios (AORs) with 95% confidence intervals.

### 3 | RESULTS

#### 3.1 | Loss-related characteristics of the sample

In total, 87.7% ( $n = 1797$ ) of people indicated a lifetime bereavement. Fewer participants reported losing a child (5.6%,  $n = 114$ ), or a partner or spouse (9.8%,  $n = 200$ ) compared to the number who reported losing an acquaintance (71.6%,  $n = 1467$ ) or a grandparent (81.9%,  $n = 1678$ ). Participants were then asked to focus on the bereavement that affected them the most if they had experienced more than one bereavement. Almost half of the sample (46.6%;  $n = 68$ ) reported the loss of a parent as being the worst, and just over one-quarter (28.1%;  $n = 484$ ) reported the loss of a grandparent as the worst. Cause of death in most cases was either an anticipated natural death (46.3%,  $n = 829$ ) or an unexpected natural death (34.7%,  $n = 621$ ). The most common timeframe of bereavement was more than 10 years ago (38.2%,  $n = 684$ ), and least common was within the last 6 months (3.8%,  $n = 68$ ). Approximately one-third of the sample reported being in contact with the deceased every day in the year prior to death (35.6%,  $n = 638$ ), while just 2.7% ( $n = 48$ ) indicated no contact with the deceased in the year prior to death.

#### 3.2 | Symptoms and prevalence of probable PGD

The means and frequencies of PGD symptom endorsement are presented in Table 3. The observed range of IGQ scores was 0 to 20, with a mean score of 8.90 ( $SD = 4.82$ ). The most endorsed symptom was “Yearning for the deceased almost every day” (64.9%), and the least endorsed symptom was “Feeling guilty or angry about my loss” (30.5%). The functional impairment criterion

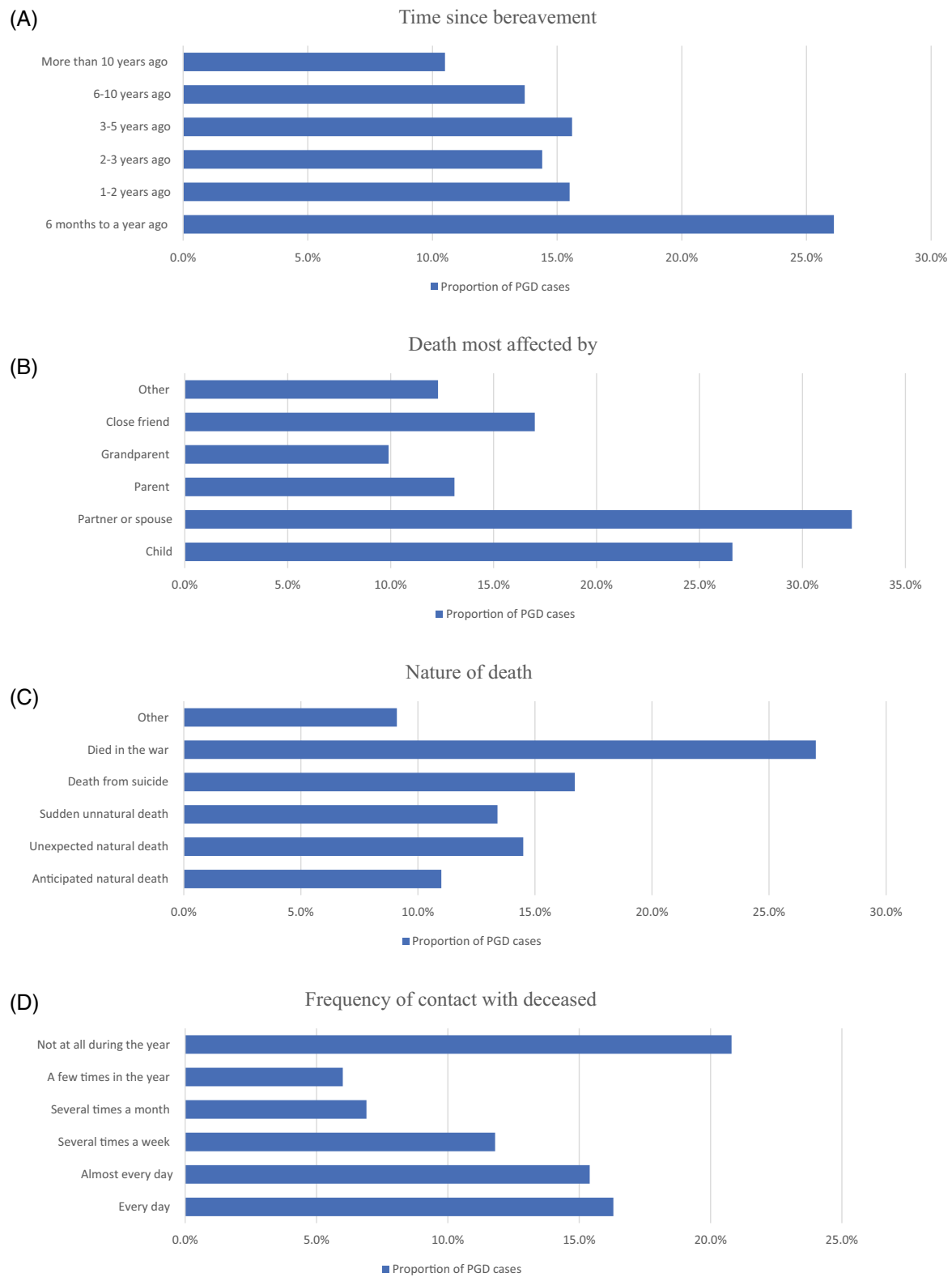
was endorsed by 18.0% ( $n = 370$ ), and the cultural criterion was endorsed by 49.9% ( $n = 1006$ ).

In the entire sample 11.4% (95% CI 10.0%, 12.8%) met the diagnostic requirements for probable ICD-11 PGD, and amongst those with a lifetime bereavement, the conditional rate was 13.0% (95% CI = 11.5%, 14.6%). The proportion of participants meeting diagnostic requirements for probable PGD across all levels of the loss-related are illustrated in Figure 1A–D.

Results demonstrated a significant association between time since bereavement and meeting diagnostic requirements for probable PGD, ( $\chi^2 [6] = 29.96$ ,  $p < 0.001$ ,  $V = 0.13$ ). The highest proportion of participants meeting diagnostic requirements for probable PGD were those bereaved 6 months to a year ago, and the lowest proportion were those bereaved more than 10 years ago. Results demonstrated a significant association between the death one was most affected by and meeting diagnostic requirements for probable PGD, ( $\chi^2 [10] = 38.63$ ,  $p < 0.001$ ,  $V = 0.15$ ). The highest proportion of participants meeting diagnostic requirements were those who lost a partner or spouse, and the smallest was for those that lost a grandparent. Results demonstrated a significant association between nature of the death and meeting diagnostic requirements for probable PGD, ( $\chi^2 [5] = 18.58$ ,  $p = 0.002$ ,  $V = 0.10$ ). The highest proportion of participants meeting diagnostic requirements for probable PGD was for those who lost a loved one in the war, and the lowest proportion was for those who lost a loved one due to “other” causes. Finally, results demonstrated a significant association between being in contact with the deceased and meeting diagnostic requirements for probable PGD, ( $\chi^2 [5] = 27.51$ ,  $p < 0.001$ ,  $V = 0.12$ ). The highest proportion of participants who met diagnostic requirements for probable PGD were those who were not in contact at all with the deceased in the year prior to their death, while the lowest proportion was for those who were in contact with the deceased a few times in the year.

TABLE 3 Means and endorsement rates for IGQ items ( $N = 2050$ ).

Item	Item score		Item endorsement count	
	<i>M</i>	<i>SD</i>	<i>n</i>	%
1. Yearning for the deceased <i>almost every day</i> ?	2.20	1.16	1331	64.9
2. Thinking too much about the deceased <i>almost every day</i> ?	1.82	1.17	1094	53.4
3. Feeling guilty or angry about my loss	1.14	1.21	626	30.5
4. Having trouble accepting the death of my loved one.	2.11	1.26	1203	58.7
5. Feeling sad or emotionally numb.	1.63	1.22	914	44.6
Total	8.90	4.82		
Functional impairment			370	18.0
Cultural criterion			1006	49.1



**FIGURE 1** (A) Proportion of PGD cases according to time since bereavement (B) Proportion of PGD cases according to death most affected by (C) Proportion of PGD cases according to nature of death (D) Proportion of PGD cases according to frequency of contact with the deceased in the year prior to their death.

### 3.3 | Predictors of probable PGD diagnostic status

Table 4 provides the adjusted associations between the demographic, bereavement-related, and mental health variables and probable PGD. The unique, positive, significant predictors of PGD were the loss of a loved one 6 months to a year ago, the death of a partner or spouse, the deceased dying in the war, being in contact with the deceased every day, almost every day, several times a week, or not at all during the year preceding their death and meeting diagnostic requirements for probable depressive disorder and generalized anxiety disorder.

## 4 | DISCUSSION

The primary objective of this study was to estimate what proportion of adults living in Ukraine have been bereaved, met diagnostic requirements for probable PGD, and which of a range of demographic, mental health, and bereavement-related variables were uniquely associated with probable PGD. Almost nine-in-ten (87.7%) people had been bereaved, and these bereavements typically happened a long time ago and entailed the loss of a parent or grandparent, a death due to natural causes, and the deaths of those with whom the bereaved had regular contact with before passing. The magnitude of lifelong bereavement in this sample is higher than that observed in other population-based studies where rates have ranged from about 60% to 80%.<sup>3–5</sup> It is highly probable that the higher rate of bereavement amongst adults in Ukraine is a direct consequence of Russia's war given that by the middle of 2023, 63% of adults in Ukraine indicated that they knew someone who had died in the war.<sup>6</sup>

Despite the very high level of bereavement, only about one-in-nine (11.4%) adults met the diagnostic requirements for probable ICD-11 PGD. Amongst those with a lifetime bereavement, the conditional rate was 13.0%. Thus, most adults in Ukraine that have experienced a bereavement have adjusted to their loss. It is difficult to contextualize the prevalence estimate in the current study because until recently there have been no formal diagnostic rules for PGD, and even following the inclusion of PGD in ICD-11, there has been little consensus on how to classify people as meeting diagnostic requirements. Consequently, rates of ICD-11 PGD had varied widely across studies with population-level estimates ranging from 2.4% to 10.0%,<sup>5,19</sup> and conditional prevalence rates in bereaved persons ranging from 10.7% to 16.2%.<sup>13</sup> Despite these difficulties, it seems that the rate of probable PGD in Ukraine at the moment is not widely different from what has been observed in other

populations. This, however, requires further monitoring, considering the unprecedented level of violence toward the civil population during this war.

The final aim of the study was to explore correlates associated with meeting diagnostic requirements for probable ICD-11 PGD. Consistent with prior studies,<sup>5,20,21</sup> people who were bereaved 6 months to a year ago were about two-and-a-half time more likely to meet requirements for PGD than those bereaved more than 10 years ago. Since the full-scale Russian invasion of Ukraine started approximately 1.5 years prior to the collection of our data, it is probable that those who have lost loved ones to the conflict are also included in this group. Consistent with prior research,<sup>22,23</sup> losing a partner or spouse was associated with being three times more likely to meet requirements for probable PGD compared to the lowest risk group, which were those that had lost a grandparent. It should also be noted that a sizeable effect was also evident for those that had suffered the death of a child, and this is an anticipated finding given that the death of a child is often unexpected and defies the natural order of life.<sup>24,25</sup>

Additionally, of all causes of death, only losing someone during the current war was associated with a higher odds of meeting requirements for probable PGD. Violent deaths are a known risk factor for the development of PGD and are a frequent occurrence in the context of war.<sup>26,27</sup> It has been suggested that factors such as lack of readiness for the death, difficulty in making sense of the death, high levels of negative appraisal about the self and others, as well as social stressors relating to violent deaths increase risk of PGD.<sup>27</sup> Those members of the population that have lost a loved one in the war may be considered especially vulnerable to complicated grief responses.

It is widely established that closeness to the deceased is linked to an increased risk of PGD.<sup>28</sup> Findings in the current sample were interesting regarding this variable. As can be seen clearly in Figure 1D, risk of probable PGD was high in those reporting contact with the deceased every day in the year prior to the death, with that risk declining as contact with the deceased declined, but then the trend reversed such that the highest risk of probable PGD was amongst those with no contact with the deceased in the year prior to the death. We can only speculate as to why this effect was observed. One potential explanation is that some people had no contact with the deceased for a year prior to the death because the deceased may have been in the Armed Forces and deployed in a manner that meant communication was difficult or impossible. Alternatively, the bereaved and the deceased may simply have lost contact due to differing life paths, or the bereaved and the deceased may have

	Proportion of PGD cases	PGD	
		AOR	95% CI
<b>Demographic</b>			
Sex (female)	15.3%	0.87	(0.63, 1.20)
Age		0.99	(0.98, 1.01)
<b>Location in Ukraine</b>			
Western Ukraine	14.3%	1.18	(0.70, 2.00)
North Ukraine	12.6%	1.01	(0.58, 1.75)
Central Ukraine	13.9%	*	*
Eastern Ukraine	12.2%	0.98	(0.54, 1.77)
South Ukraine	14.5%	1.22	(0.72, 2.05)
<b>Time since bereavement</b>			
6 months to a year ago	26.1%	<b>2.53</b>	(1.29, 4.94)
1–2 years	15.5%	1.51	(0.86, 2.65)
2–3 years	14.4%	1.72	(0.95, 3.12)
3–5 years	15.6%	1.59	(0.96, 2.62)
6–10 years	13.7%	<b>1.54</b>	(1.00, 2.38)
More than 10 years	10.5%	*	*
<b>Death most affected by</b>			
Child	26.6%	<b>2.05</b>	(1.00, 4.21)
Partner or spouse	32.4%	<b>2.98</b>	(1.57, 5.68)
Parent	13.1%	*	*
Grandparent	9.9%	0.72	(0.45, 1.15)
Close friend	17.0%	0.84	(0.41, 1.73)
Other	12.3%	0.85	(0.48, 1.51)
<b>Nature of death</b>			
Anticipated natural death	11.3%	*	*
Unexpected natural death	15.1%	1.10	(0.77, 1.59)
Sudden unnatural death	13.5%	1.04	(0.55, 1.94)
Death from suicide	16.7%	1.84	(0.58, 5.89)
Died in the war	36.4%	<b>2.98</b>	(1.27, 6.88)
Other	3.7%	0.78	(0.3, 1.80)
<b>Frequency of contact with deceased prior to death</b>			
Every day	17.0%	<b>2.72</b>	(1.48, 4.99)
Almost every day	16.1%	<b>3.06</b>	(1.63, 5.77)
Several times a week	12.1%	<b>2.07</b>	(1.07, 4.00)
Several times a month	7.1%	*	*
A few times in the year	6.4%	1.03	(0.44, 2.42)
Not at all during the year	22.2%	<b>3.06</b>	(1.09, 8.62)
<b>Mental health</b>			
Depression	50.8%	<b>3.51</b>	(2.13, 5.76)
Anxiety	43.2%	<b>5.27</b>	(3.46, 8.04)

Note: 95% CI, 95% confidence interval; AOR, adjusted odds ratios. Statistically significant effects are indicated if 1 is outside the 95% CI's.

**TABLE 4** Demographic, loss-related, and mental health predictors of ICD-11 PGD for greater than 6 months sample ( $n = 1723$ ).



been in conflict and as such not in contact with one another. The difference in the rates of probable PGD in those reporting contact with the deceased “a few times in the year” (6%) and “not at all in the year” (21%) is stark. Previous studies have demonstrated that conflict or ambivalence toward the deceased is associated with PGD, most likely because of guilt, regret, or anger.<sup>29</sup>

Finally, we also found that people that met diagnostic requirements for probable ICD-11 depressive disorder and ICD-11 GAD were approximately three-and-a-half and five times more likely to meet requirements for probable PGD, respectively. This is not particularly surprising given that research has shown a high degree of co-occurrence between PGD, depression, and anxiety symptoms.<sup>30</sup> Nevertheless, it appears that persons with co-occurring mood and anxiety based mental health problems may be less likely to be able to adjust to the loss of a loved one and thus be more vulnerable to negative grief-related responses.

Findings of this study should be considered in light of several limitations. First, as previously highlighted, it was not feasible to collect a sample that was entirely representative of all of Ukraine's adult population because of the ongoing war and Russian occupation of many parts of Ukraine. Nevertheless, efforts were made to recruit individuals of all ages and genders, as well as those who lived throughout Ukraine. We were unable to meet our quota of participants aged 60 years and older meaning the age composition of the sample is likely to be slightly younger than the population, and it was not possible to collect responses from Crimea. Second, our inability to recruit participants from regions heavily affected by the conflict or in Russian-occupied territories may have resulted in an underestimation of the true rate of bereavement in the population. That being said, findings indicated no statistically significant differences in meeting diagnostic requirements for probable ICD-11 PGD based on the region of Ukraine where participants lived. Third, some of the categories for the death most affected by variable were underrepresented which may have affected our ability to make valid comparisons between these different categories. Fourth, the cross-sectional nature of the data prohibits any causal inferences being made about the nature of the relationship between the variables. Although previous research has demonstrated that pre-existing mental health problems are a risk-factor for PGD,<sup>31</sup> it was not possible to determine whether depression and anxiety preceded, occurred alongside, or succeeded PGD. Fifth, the current study was based on self-report data, which can lead to biased responding. A previous study comparing self-report vs clinician-administered measures found variables such as misinterpretation of symptoms or time periods contributing to differences in answers.<sup>32</sup> However, the same study also

showed that prevalence rates were not affected by the mode of assessment,<sup>32</sup> and thus, future research using clinician-administered measures is required to determine whether this is the case for the IGQ.

To conclude, despite these limitations, our findings are important in highlighting the prevalence of bereavement and grief-related psychological distress amongst the adult population of Ukraine. Our results also highlight several bereavement-related factors associated with probable PGD which may be helpful in identifying those in the population most at risk of grief-related distress. Additionally, these findings are important in being amongst the first to report on bereavement and grief in a population experiencing an ongoing war. Findings from this study are also important given the calls to develop effective mental health interventions to address the current and future mental health needs of Ukrainians,<sup>33</sup> by indicating that grief-related distress will be a relatively common form of distress requiring attention.

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## CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

## PEER REVIEW

The peer review history for this article is available at <https://www.webofscience.com/api/gateway/wos/peer-review/10.1111/acps.13678>.

## DATA AVAILABILITY STATEMENT

Neither the data nor the materials have been made available on a permanent third-party archive.

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## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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