Journal of Affective Disorders 240 (2018) 79–87

Contents lists available at ScienceDirect

Journal of Affective Disorders

journal homepage: www.elsevier.com/locate/jad

Research paper

Evaluation of the factor structure, prevalence, and validity of disturbed grief in DSM-5 and ICD-11

Paul A. Boelen[a,b,*], Lonneke I.M. Lenferink[a,c], Angela Nickerson[d], Geert E. Smid[b,e]

[a] Department of Clinical Psychology, Faculty of Social Sciences, Utrecht University, P.O. Box 80140, 3508 TC, Utrecht, The Netherlands
[b] Arq Psychotrauma Expert Group, Nienoord 5, 1112 XE, Diemen, The Netherlands
[c] Department of Clinical Psychology and Experimental Psychopathology, Faculty of Behavioral and Social Sciences, University of Groningen, Grote Kruisstraat 2/1, 9712 TS, Groningen, The Netherlands
[d] School of Psychology, UNSW Australia, Sydney, NSW, Australia
[e] Foundation Centrum '45, Nienoord 5, 1112 XE, Diemen, The Netherlands

ARTICLE INFO

Keywords:
Persistent complex bereavement disorder
DSM-5
Prolonged grief disorder
ICD-11
Grief

ABSTRACT

Background: Persistent complex bereavement disorder (PCBD) is a disorder of grief included in DSM-5 Section 3. Prolonged Grief Disorder (PGD) is a disorder of grief that will enter the forthcoming ICD-11. This study evaluated the factor structure, prevalence, and validity of disturbed grief as per DSM-5 and ICD-11.

Methods: With data from a community sample ($N = 512$), we used confirmatory factor analysis (CFA) to evaluate the fit of different factor models for PCBD and PGD, determined diagnostic rates for probable PCBD and PGD, and used sensitivity/specificity analyses to evaluate the performance of individual items as indicators of PCBD and PGD. We calculated associations of PCBD-caseness and PGD-caseness with concurrently assessed symptoms of posttraumatic stress disorder (PTSD) and depression and, in a subset of 280 participants, with these same symptoms assessed one year later, to examine concurrent and predictive validity of PCBD and PGD.

Results: For PCBD-symptoms, a three-factor model with distinct factors of separation distress, reactive distress, and social/identity disruption fit the data well; for PGD-symptoms a two-factor model with distinct separation distress symptoms and additional symptom (e.g., guilt, anger, blame) yielded acceptable model fit. Overall, items evidenced strong sensitivity and negative predictive power, and relatively poor specificity and positive predictive power. The prevalence of probable DSM-5 PCBD (6.4%) was significantly lower than the prevalence of ICD-11 PGD (18.0%). Both PCBD and PGD were significantly associated with concurrent overall grief, depression, and PTSD; PCBD but not PGD was associated with symptoms one year beyond baseline.

Limitations: Limitations include our reliance on self-reported data and symptoms of PCBD and PGD being derived from two questionnaires.

Conclusions: Findings provide preliminary evidence for the validity of both the PCBD and PGD constructs, albeit that prevalence rates of both constructs and predictive validity differ—which needs further scrutiny.

1. Introduction

The American Psychiatric Association (APA) has made a significant change to the 5th edition of their Diagnostic and Statistical Manual of Mental Disorders (DSM-5, APA, 2013) concerning the classification of disturbed grief, by including Persistent Complex Bereavement Disorder (PCBD). PCBD is included as a condition for further study in Section 3, and can be classified as "Other Specified Trauma- and Stressor-Related Disorder." PCBD comprises 16 symptoms, organized under two symptom-clusters, namely separation distress and a second symptom-cluster with additional symptoms, that is subdivided into signs of "reactive distress to the death" and "social/identity disruption". A diagnosis of PCBD requires that the person has experienced the death of someone with whom s/he had a close relationship, and the endorsement of at least one separation distress symptom and six additional symptoms. Additionally, these symptoms must be associated with functional impairment, and have persisted for at least 12 months after the death. The World Health Organization has proposed a similar change to the forthcoming 11th edition of the International Classification of Diseases (ICD-11) by adding Prolonged Grief Disorder (PGD) to the category of "Disorders associated with stress" (WHO, 2018). PGD includes a description of 12 symptoms, categorized into separation

* Corresponding author at: Department of Clinical Psychology, Faculty of Social Sciences, Utrecht University, P.O. Box 80140, 3508 TC, Utrecht, The Netherlands.
E-mail address: p.a.boelen@uu.nl (P.A. Boelen).

https://doi.org/10.1016/j.jad.2018.07.041
Received 22 April 2018; Received in revised form 1 June 2018; Accepted 14 July 2018
Available online 18 July 2018

distress and additional symptoms. A diagnosis of PGD requires having experienced loss, combined with at least one of two symptoms of separation distress and at least one of ten additional symptoms. These symptoms must be associated with functional impairment and have persisted for at least 6 months after the death (WHO, 2018).

Both conditions of disturbed grief in DSM-5 and ICD-11 are intended to capture the pervasive emotional distress that can occur following bereavement in a significant minority of people. Disturbed grief occurs in 5–10% of people confronted with natural losses (Lundorff et al., 2017) and a slightly higher percentage of people confronted with unnatural losses, including accidents, suicide, and homicide (cf. Kristensen et al., 2012). An apparent difference between both criteria-sets is that ICD-11 PGD includes a shorter list of symptoms. This reflects the aim of the ICD system to simplify the classification of disturbed grief and enhance clinical utility, which is particularly relevant in low-resourced contexts (Maercker et al., 2013). Differences in criteria for disturbed grief in DSM-5 and ICD-11 parallel the way that posttraumatic stress disorder (PTSD) is described in both systems, with DSM-5 distinguishing 20 symptoms and ICD-11 only 6 symptoms. Studies comparing PTSD in DSM-5 and ICD-11 have suggested that the predictive validity of both criteria-sets is similar but that ICD-11 PTSD generates lower prevalence rates (Hansen et al., 2015; Shevlin et al., 2018).

In contrast with the growing number of studies comparing psychometric properties of PTSD in DSM-5 and ICD-11, few studies have evaluated the psychometric properties of disturbed grief in DSM-5 and ICD-11. Five recent studies are pertinent to this issue. Using data from a community sample, Maciejewski et al. (2016) compared the prevalence and validity of four criteria-sets for disturbed grief, including DSM-5 PCBD, PGD as per ICD-11, a slightly different formulation of PGD put forth by Prigerson et al. (2009), and criteria for complicated grief (CG) proposed by Shear et al. (2011). Outcomes showed that the first three criteria-sets yielded similar prevalence rates and predictive validity, whereas CG criteria performed poorly as indicators of disturbed grief. Cozza et al. (2016) studied bereaved military family members, comparing DSM-5 PCBD, PGD as per Prigerson et al. (2009), and CG as per Shear et al. (2011). They found that CG criteria performed best in terms of distinguishing between people with disturbed and non-disturbed grief. However, this conclusion has been critiqued since they excluded participants with subthreshold grief symptoms (Maciejewski & Prigerson, 2017; Smid & Boelen, 2016). A further comparison between these three sets of criteria was conducted by Mauro et al. (2017); in a sample of treatment seeking bereaved individuals, they also found that CG performed better than DSM-5 PCBD and PGD as per Prigerson et al. (2009). Tay et al. (2016) compared different factor-models of disturbed grief in a sample of West Papuan refugees. They found that a six-factor structure (based on Simon et al. 2011) fit the data better compared to factor solutions reflecting DSM-5 PCBD and PGD as per Prigerson et al. Finally, Claycomb et al. (2016) evaluated the factor structure and clinical correlates of DSM-5 PCBD in a large sample of bereaved Bosnian adolescents and found preliminary evidence for a multidimensional structure of PCBD in this group. All these studies have advanced our understanding of criteria for disturbed grief. However, only the study by Maciejewski et al. (2016) evaluated PGD-criteria as proposed for ICD-11 and that evaluation is currently less relevant because criteria for ICD-11 PGD have changed since that study. Moreover, prior studies relied on different samples and grief measurement instruments which limits the possibility to compare findings between studies.

Altogether, there is a need to enhance knowledge on the psychometric properties of different criteria-sets for disturbed grief. Evaluation of the DSM-5 and ICD-11 criteria is particularly relevant because these are included in the most widely used diagnostic systems worldwide and—as such—are mostly used in clinical and research settings. Identifying a psychometrically sound conceptualization of disturbed grief is important for theoretical reasons (to inform research on the aetiology and maintaining mechanisms of disturbed grief) and clinical practice (to foster the identification of people in need of support). Comparing DSM-5 PCBD-criteria and ICD-11 PGD-criteria is particularly important in order to know whether research findings based on one of these criteria-sets can be generalized to people meeting criteria for the other set.

The present study represented a preliminary attempt to evaluate the psychometric properties of disturbed grief as per DSM-5 and ICD-11, using self-reported data from a large Dutch bereaved community sample. The first aim was to examine the factor structure of DSM-5 PCBD and ICD-11 PGD. Items from the Inventory of Complicated Grief Revised (ICG-R, Prigerson & Jacobs, 2001) and Beck Depression Inventory-II (BDI-II; Beck et al., 1996) were selected for inclusion in this study according to how closely they mapped onto both criteria-sets. We evaluated the fit of three PCBD-models (mirroring the clustering of PCBD-symptoms in DSM-5): (i) a one-factor model with all PCBD-items loading on a single factor, (ii) a two-factor model with PCBD-items forming distinct, but correlated clusters of separation distress (factor 1) and reactive distress and social/identity disruption (factor 2), (iii) a three-factor model with PCBD-items forming distinct, but correlated clusters of separation distress (factor 1), reactive distress (factor 2), and social/identity disruption (factor 3). In addition, we evaluated the fit of two PGD-models: (i) a one-factor model and (ii) a two-factor model with PGD-items clustering into correlated factors of separation distress and additional symptoms—resembling the ICD-11 proposal. Because of the scant evidence regarding the factor structure of PCBD and PGD no hypotheses were formulated. A second aim was to determine prevalence rates of disturbed grief as per DSM-5 and ICD-11, the diagnostic agreement between diagnostic criteria, and the number of 'unique' cases of PCBD and PGD (i.e., individuals meeting criteria for PCBD but not PGD, and vice versa). A third aim was to evaluate the performance of individual items of DSM-5 PCBD and ICD-11 PGD as indicators of PCBD and PGD. To this end, we determined the sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of PCBD-items and PGD-items in relation to a diagnosis of probable PCBD and a diagnosis of probable PGD, respectively (cf. Nickerson et al., 2016). The fourth aim was to evaluate the concurrent validity of PCBD and PGD diagnoses. To this end, we compared symptom-levels of overall disturbed grief, depression, and PTSD between cases and non-cases of DSM-5 PCBD and between cases and non-cases of ICD-11 PGD. The fifth aim was to examine the predictive validity of PCBD and PGD diagnoses, using data from a subset of participants completing additional measures one year after baseline. We examined the degree to which meeting criteria for caseness according to both criteria-sets at T1 was associated with higher levels of overall disturbed grief, depression, and PTSD at T2 (one year later), while controlling for baseline symptom-levels.

2. Method

2.1. Participants and procedure

Data were originally collected in the context of an IRB approved research project conducted in the Netherlands (see e.g., Boelen et al., 2015; Djelantik et al., 2017). Participants were recruited via professional and lay mental health care workers (e.g., grief counsellors, therapists) who distributed questionnaires among bereaved persons. Over 700 individuals entered the project. For this study, we selected data from 512 participants who were at least 18 years of age and bereaved more than 5 months but less than 10 years ago. All participants provided written informed consent and were invited to complete symptom-measures again one year after inclusion in the research. Of the 512 participants, 280 (54.7%) did so. Dropout analyses showed that, compared with those who continued to participate at T2 (n = 280), losses of participants dropping out (n = 232) occurred more months ago (M = 32.24 [SD = 27.90] vs. M = 25.65 [SD = 24.56]

Table 1
DSM-5 criteria for Persistent Complex Bereavement Disorder and Standardized Factor-Loadings, Mean Scores, Sensitivity, Specificity, PPV, and NPV.

			Standardized factor-loadings								
	Symptoms of Persistent Complex Bereavement Disorder	Item match	One-factor model	Two-factor model	Three-factor model	M (SD)	% with symptom present	Sensitivity	Specificity	PPV	NPV
1	Persistent yearning/longing for the deceased	I feel myself longing and yearning for […]	0.688	0.722	0.718	3.73 (0.98)	61.7	0.96	0.39	0.10	0.99
2	Intense sorrow and emotional pain	I experience intense emotional pain, sadness, or pangs of grief	0.762	0.789	0.787	3.35 (1.00)	25.6	0.81	0.78	0.20	0.98
3	Preoccupation with the deceased person	I think about […] so much that it can be hard to do the things I normally do	0.785	0.815	0.817	2.80 (1.02)	48.4	0.93	0.54	0.12	0.99
4	Preoccupation with circumstances of the death	Memories of […] upset me	0.647	0.666	0.669	2.92 (0.99)	25.4	0.78	0.78	0.20	0.98
5	Difficulty accepting the death	I feel that I have trouble accepting the death	0.572	0.563	0.601	2.73 (1.26)	26.0	0.81	0.77	0.20	0.98
6	Disbelief or numbness	I feel like I have become numb since the death of […]	0.751	0.752	0.771	2.33 (1.12)	15.4	0.72	0.88	0.30	0.97
7	Difficulty positive reminiscing about deceased	–	–	–	–	–	–	–	–	–	–
8	Bitterness or anger	I can't help feeling angry about […]'s death	0.550	0.548	0.574	2.48 (1.28)	20.9	0.75	0.82	0.23	0.98
9	Maladaptive appraisals about the self associated with the loss (e.g., self-blame)	I don't feel particularly guilty/I feel guilty a good part of the time/I feel quite guilty most of the time/I feel guilty all of the time	0.534	0.542	0.537	1.31 (0.58)	3.5	0.12	0.97	0.22	0.94
10	Excessive avoidance of stimuli	I avoid places, objects, thoughts, or memories associated with the death of the relative	0.365	0.366	0.380	1.87 (1.04)	7.8	0.30	0.93	0.25	0.95
11	A desire to die to be with the deceased	I don't have any thoughts of killing myself/I have thoughts of killing myself, but I would not carry them out/I would like to kill myself/I would kill myself if I had the chance	0.427	0.438	0.444	1.23 (0.46)	1.2	0.06	0.99	0.33	0.94
12	Difficulty trusting other people	Ever since […] died it is hard for me to trust people	0.536	0.547	0.543	1.96 (1.06)	9.8	0.48	0.92	0.32	0.96
13	Feeling alone or detached from other persons	I feel lonely ever since […] died	0.753	0.764	0.785	3.18 (1.18)	42.6	0.96	0.60	0.14	0.99
14	Feeling that life is empty or meaningless or one is unable to function without the deceased	I feel that life is empty or meaningless without […]	0.826	0.832	0.848	2.90 (1.22)	31.8	0.93	0.72	0.19	0.99
15	Confusion about one's role and diminished identity (e.g., feeling that part of self died)	I feel that a part of me died along with the deceased	0.749	0.753	0.756	3.02 (1.30)	39.1	0.93	0.64	0.15	0.99
16	Difficulties to pursue interests or plan for the future (e.g., friendships, activities)	I experience difficulties moving on with life (e.g., making new friend, pursuing interests)	0.755	0.770	0.778	2.52 (1.21)	23.4	0.93	0.81	0.25	0.99

Note. All items are from the Inventory of Complicated Grief-Revised, except items 9 and 11 that are taken from the Beck Depression Inventory-II. NPV = Negative Predictive Value. PPV = Positive Predictive Value.

Table 2
ICD-11 criteria for Prolonged Grief Disorder and Standardized Factor-Loadings, Mean Scores, Sensitivity, Specificity, PPV, and NPV.

			Factor-loadings							
	Symptoms of Prolonged Grief Disorder	Item match	One-factor model	Two-factor model	M (SD)	% with symptom present	Sensitivity	Specificity	PPV	NPV
1	Longing for the deceased	I feel myself longing and yearning for […]	0.684	0.716	3.73 (0.98)	61.7	0.92	0.43	0.26	0.96
2	Persistent preoccupation with the deceased	I think about […] so much that it can be hard to do the things I normally do	0.793	0.841	2.80 (1.02)	25.7	0.64	0.82	0.45	0.91
3	Accompanied by: Intense emotional pain, e.g.: Sadness	I experienced intense emotional pain, sadness, or pangs of grief	0.755	0.751	3.35 (1.00)	48.4	0.88	0.60	0.32	0.95
4	Guilt	I feel that it is unfair that I should live when […] died.	0.631	0.636	1.99 (1.26)	13.9	0.33	0.90	0.43	0.86
5	Anger	I can't help feeling angry about […]'s death	0.578	0.581	2.48 (1.28)	20.9	0.40	0.83	0.34	0.86
6	Denial	I avoid places, objects, thoughts, or memories associated with the death of the relative	0.367	0.371	1.87 (1.04)	7.8	0.20	0.94	0.45	0.84
7	Blame	I don't feel particularly guilty/I feel guilty a good part of the time/I feel quite guilty most of the time/I feel guilty all of the time	0.532	0.536	1.31 (0.58)	3.5	0.04	0.96	0.22	0.82
8	Difficulty accepting the death	I feel that I have trouble accepting the death	0.592	0.591	2.73 (1.26)	26.0	0.56	0.80	0.39	0.89
9	Feeling one has lost a part of one's self	I feel that a part of me died along with the deceased	0.749	0.750	3.02 (1.30)	39.1	0.77	0.69	0.35	0.93
10	An inability to experience positive mood	I get as much satisfaction out of things as I used to/I don't enjoy things the way I used to/I don't get real satisfaction out of anything anymore/I am dissatisfied or bored with everything	0.471	0.478	1.91 (0.69)	15.4	0.40	0.89	0.46	0.87
11	Emotional numbness	I feel like I have become numb since the death of […]	0.760	0.763	2.33 (1.12)	15.4	0.43	0.90	0.50	0.87
12	Difficulty in engaging with social or other activities	I experience difficulties moving on with life (e.g., making new friend, pursuing interests)	0.737	0.744	2.52 (1.21)	23.4	0.63	0.85	0.48	0.91

Note. All items are from the Inventory of Complicated Grief-Revised, except items 7 and 10 that are taken from the Beck Depression Inventory-II. NPV = Negative Predictive Value. PPV = Positive Predictive Value.

months, t(464.43) = 2.80 (equal variances not assumed), $p < .01$). There were no differences between stayers and dropouts in terms of age, gender, education, mode of death, and kinship to the deceased.

2.2. Measures

2.2.1. Inventory of complicated grief-revised (ICG-R)

Symptoms of disturbed grief were assessed using the 29-item Dutch version of the ICG-R (Boelen et al., 2003) originally developed by Prigerson and Jacobs (2001). In the current research, an expanded version of this measure was used, including three additional items tapping (i) difficulties moving on with life, (ii) experiencing intense emotional pain, sadness, and pangs of grief, and (iii) avoidance of places, objects, thoughts, or memories associated with the death. Participants rated the degree to which symptoms occurred during the preceding month, on 5-point scales ranging from 1 = *never* to 5 = *all the time*. We used the summed 29 items of the ICG-R (α = 0.95 at T1 and T2) as an index of "overall disturbed grief". Moreover, 13 of the 16 symptoms of DSM-5 PCBD, and 10 of the 12 symptoms of ICD-11 PGD were extracted from the ICG-R. Tables 1 and 2 show symptoms of both criteria-sets and ICG-R items representing these symptoms.

2.2.2. Beck depression inventory (BDI-II)

The BDI-II contains 21 groups of four statements representing depressive symptoms at increasing levels of severity. Respondents choose the statement that best describes their state during the previous week. English (Beck et al., 1996) and Dutch (Van der Does, 2002) versions have adequate psychometric properties. The α in this sample was 0.91 at T1 and 0.92 at T2. The summed score indicated depression severity. Two of the 16 symptoms of DSM-5 PCBD and 2 of the 12 symptoms of ICD-11 PGD were extracted from the BDI-II (Tables 1 and 2).

2.2.3. PTSD symptom scale self-report version (PSS-SR)

The PSS-SR is a 17-item measure of DSM-IV based PTSD symptoms (APA, 2000). Respondents rate the frequency of symptoms on 4-point scales (0 = *not at all*, 3 = *five or more times per week/almost always*). The index event was defined as "the death of your loved one" (e.g., "How often did you have unpleasant dreams or nightmares about the death of your loved one?"). English (Foa et al., 1993) and Dutch (Engelhard et al., 2007) versions have good psychometric properties. Analyses were done with the three (DSM-IV based) subscales of intrusions (α = 0.77 at T1 and T2), avoidance (α = 0.76 at T1, α = 0.78 at T2), and hyperarousal (α = 0.71 at T1, α = 0.69 at T2), as well as with the total PTSD score (α = 0.89 at T1, α = 0.88 at T2).

2.3. Statistical analyses

Items from the ICG-R and BDI-II were used to tap symptoms of PCBD and PGD. Fifteen of all 16 PCBD-symptoms (i.e., all symptoms except "Difficulty positive reminiscing about the deceased") were represented by 13 ICG-R items and 2 BDI-II items (see Table 1). All 12 PGD-items were represented by 10 ICG-R items and 2 BDI-II items (see Table 2). To address our first aim, confirmatory factor analysis was used to evaluate the fit of the three PCBD-models and two PGD-models introduced before. Data on all variables were univariate normally distributed (absolute skew < 3.0 and absolute kurtosis < 10.0; Kline, 2005). Therefore, maximum likelihood estimation was used in Mplus Version 8 (Muthén & Muthén, 1998, 2017). Kline's (2005) recommendations for evaluating model fit were used: (i) Comparative Fit Index (CFI) and Tucker Lewis Index (TLI) values > 0.90 reflecting acceptable model fit and values > 0.95 reflecting excellent fit; (ii) root-mean-square error of approximation with 90% confidence intervals (RMSEA 90% CI) values of < 0.10 reflecting acceptable fit and values < 0.05 reflecting excellent model fit; and (iii) standardized root mean square residual (SRMR) values of < 0.10 representing acceptable fit. Chi-square difference tests were used to compare the fit of nested models. In addition, Akaike, Bayesian, and Sample-Size adjusted Bayesian information criteria (AIC, BIC, and SS-BIC) were estimated to compare the fit of different PCBD-models and PGD-models, with lower values indicating better fit. There was less than 5% missing data on any variable. Missing data were accounted for using full maximum likelihood estimation.

To address our second aim, we counted the number of people meeting criteria for probable DSM-5 PCBD and ICD-11 PGD. In so doing, symptom-scores were dichotomized as 0 = *absent* and 1 = *present*, with ICG-R-items rated as present when scored with a 4 or 5 response (on the 1–5 Likert scale) and BDI-II-items rated as present when scored 2 or 3 (on the 0–3 Likert scale). Criteria for probable PCBD-caseness required the presence of at least 1 separation distress symptom (symptoms 1–4, Table 1) and at least 6 additional symptoms (symptoms 5–16, Table 1), along with the presence of the ICG-R functional impairment item ("I believe that my grief has resulted in significant impairments in my social, occupational, or other areas of functioning"). Criteria for probable PGD-caseness required the presence of at least 1 separation distress symptom (symptoms 1–2, Table 2) and at least 1 additional symptom (symptoms 3–12, Table 2), along with the presence of the same ICG-R functional impairment item (WHO, 2018). Pairwise agreement between tests was evaluated using kappa statistics.

To address our third aim, we calculated the sensitivity, specificity, PPV, and NPV for PCBD-symptoms in relation to meeting criteria for PCBD-caseness and, then, for PGD-symptoms in relation to meeting criteria for PGD-caseness. To examine concurrent validity (our fourth aim), we used *t*-tests to compare mean scores of concurrently assessed overall disturbed grief, depression, PTSD-clusters, and PTSD-total score between participants meeting vs. not meeting criteria for PCBD, and, then, for participants meeting vs. not meeting criteria for PGD.

To evaluate the predictive validity of PCBD and PGD (our fifth aim) we used data from the subset of participants with available data at baseline (T1) and one year later (T2). We used *t*-tests to compare between participants meeting and not meeting criteria for PCBD at T1 in terms of their scores on indices of disturbed grief, depression, PTSD-clusters, and PTSD-total at T2, and, subsequently, did the same analyses to compare participants meeting and not meeting criteria for PGD at T1. In addition, we conducted six regression analyses to examine if meeting criteria for PCBD at T1 was associated with higher levels of overall disturbed grief, depression, PTSD-clusters, and PTSD-total at T2, while controlling for the severity of these symptoms at T1. Finally, we conducted six similar regression analyses with PGD-caseness as predictor.

3. Results

3.1. Participant characteristics

The mean age of participants was 53.83 (SD = 13.92) years. Most participants (n = 390; 76.2%) were women; 307 participants (60.0%) had followed primary/secondary education only, whereas 202 participants (39.5%) had been to college or university; 338 participants (66.0%) lost a spouse/partner, 55 (10.7%) a child, and 119 (23.2%) someone other than a partner or child (e.g., friend, parent, sibling). The mean time since loss was 28.64 (SD = 26.30, range 6–120) months; losses were due to a natural cause in 444 (86.7%) participants and an unnatural cause (i.e., suicide, accident, homicide) in 68 (13.3%) participants. Characteristics of participants with available data at T2 (n = 280) were similar to the initial complete sample (N = 512) with a similar age, similar variation in gender, education, kinship to the deceased, cause of death, and time since loss.

3.2. Confirmatory factor analysis

Table 3 shows the fit indices for the five models. Standardized factor loadings for all models are shown in Table 1 (PCBD) and Table 2 (PGD). With respect to PCBD, the three-factor model yielded the best fit. The two-factor model demonstrated slightly better fit than the unitary

Table 3
Model fit statistics for one-, two-, and three-factor models.

	χ^2	df	*p*	CFI	TLI	RMSEA (90% CI)	SRMR	AIC	BIC	SS-BIC
PCBD per DSM-5										
One-factor model	377.328	90	< 0.001	0.920	0.907	0.079 (0.071–0.087)	.046	18,819.969	19,010.694	18,867.857
Two-factor model	338.516	89	< 0.001	0.931	0.918	0.074 (0.066–0.082)	.045	18,783.157	18,978.120	18,832.109
Three-factor model I	305.081	87	< 0.001	0.940	0.927	0.070 (0.062–0.079)	.043	18,752.722	18,957.162	18,804.802
PGD per ICD-11										
One-factor model	302.689	54	< 0.001	0.903	0.882	0.095 (0.085–0.105)	.051	15,594.725	15,747.305	15,633.036
Two-factor model	290.125	53	< 0.001	0.908	0.885	0.093 (0.083 – 0.104)	.050	15,584.161	15,740.979	15,623.535

Note. PCBD = Persistent complex bereavement disorder; PGD = Prolonged grief disorder; df = degrees of freedom; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; RMSEA = root-mean-square error of approximation; SRMR = standardized root mean square residual; CI = confidence interval; AIC = Akaike's information criterion; BIC = Bayesian information criterion; SS-BIC = Sample-size adjusted information criterion.

model as evidenced by a significant χ^2-difference test ($\Delta\chi^2 = 38.81$ (1), $p < .001$), smaller RMSEA and SRMR, larger CFI and TLI, and smaller AIC, BIC, and SS-BIC values. Compared with the two-factor model, the three-factor model yielded a significant improvement in fit, as evidenced by a significant χ^2-difference test ($\Delta\chi^2 = 33.44$ (2), $p < .001$) and larger CFI and TLI, and smaller RMSEA, SRMR, AIC, BIC, and SS-BIC values. All factor loadings for the three-factor model were greater than 0.600, with the exception of factor loadings of items 8 through 12 (values 0.380–0.574). The three factors correlated significantly (factor 1 with 2, $r = 0.95$; factor 1 with 3, $r = 0.90$; factor 2 with 3, $r = 0.92$, *p's* < 0.001).

With respect to PGD, both the one-factor and the two-factor model had a marginally acceptable fit (Table 3). The latter model yielded slightly better fit as evidenced by a significant χ^2-difference test ($\Delta\chi^2 = 12.56$(1), $p < .001$), larger CFI and TLI, and smaller RMSEA, SRMR, AIC, BIC, and SS-BIC values. All standardized factor loadings for the two-factor model (Table 2) were greater than 0.600, with the exception of loadings of items 5 through 8 and 10 (values 0.371–0.591). The factors correlated significantly ($r = 0.93$, $p < .001$).

3.3. Prevalence rates and agreement

The probable diagnostic rate for PCBD was 6.4% ($n = 33$) and for PGD it was 18.0% ($n = 92$). Tables 1 and 2 show mean scores for each item and percentages of participants with symptoms “present” (defined as endorsing ICG-R items with a 4 or 5 response and BDI-II items with a 2 or 3 response). The difference in diagnostic rates according to the two criteria-sets was statistically significant (Fisher's exact test, $p < .001$). There were no ‘unique’ DSM-5 PCBD-cases (i.e., people meeting criteria for PCBD-caseness but not PGD-caseness). There were 59 (11.5%) ‘unique’ ICD-11 PGD-cases (people meeting criteria for PGD-caseness but not PCBD-caseness). Thirty-three (6.4%) participants met criteria for both PCBD and PGD, representing a level of diagnostic agreement that was considered ‘fair’ (Kappa = 0.48, SE = 0.05, $p < .001$; Landis & Koch, 1977).

3.4. Sensitivity, specificity, PPV, and NPV of symptoms in relation to PCBD and PGD diagnoses

For PCBD (Table 1), ten items had good sensitivity (> 0.75). In contrast, the items blame (item 9), denial/avoidance (item 10), a desire to die (item 11), and difficulty trusting people (item 12) had poor sensitivity (< 0.50). Specificity was also good (> 0.75) for ten items, worse for the other five items (< 0.75 and > 0.50), and particularly poor (< 0.50) for yearning (item 1). The PPV of symptoms was generally quite low, whereas all symptoms evidenced good NPV (> 0.90).

Results for PGD were weaker than for PCBD (Table 2). Only three items demonstrated good sensitivity (> 0.75), namely yearning (item 1), pain and sadness (item 3), and part of self died (item 9). In contrast, several other items had poor sensitivity (< 0.50), including guilt (item 4), anger (item 5), denial/avoidance (item 6), blame (item 7), and an inability to experience positive mood (item 10). Specificity was considerably higher than sensitivity and good (i.e., > 0.75) for all items, except for yearning (item 1), pain and sadness (item 3), and part of self died (item 9). The PPV of symptoms was low, whereas all symptoms evidenced good NPV (> 0.80).

Table 4
Differences in Psychopathology Between People Meeting/Not Meeting Provisional PCBD and PGD Diagnoses.

	Meeting criteria for provisional PCBD-diagnosis?					Meeting criteria for provisional PGD-diagnosis?				
	No		Yes			No		Yes		
	M	*SD*	*M*	*SD*	*t*	*M*	*SD*	*M*	*SD*	*t*
Time point 1 (*N* = 512)										
ICG-r	71.21	20.39	109.74	7.95	23.10***	68.76	20.20	96.18	14.44	15.23***
BDI-II	12.50	8.19	28.95	9.03	11.08***	11.31	7.55	23.84	8.98	13.92***
PTSD-intrusions	3.64	2.80	7.85	3.21	8.27***	3.38	2.68	6.35	3.22	9.27***
PTSD-avoidance	5.21	3.78	11.21	3.48	8.86***	4.67	3.51	9.80	3.62	12.62***
PTSD-hyperarousal	4.50	2.68	8.09	2.66	7.46***	4.12	2.47	7.50	2.62	11.76***
PTSD-total	13.35	8.00	27.15	7.62	9.61***	12.17	7.36	23.65	7.91	13.35***
Time point 2 (*N* = 280)										
ICG-r	63.85	19.22	95.69	17.90	5.62***	62.32	19.43	79.55	17.83	5.61***
BDI-II	9.77	7.66	26.58	9.45	7.36***	9.19	7.65	16.94	9.31	6.10***
PTSD-intrusions	2.57	2.25	5.38	3.27	2.93*	2.49	2.27	3.72	2.58	3.30**
PTSD-avoidance	3.56	3.20	10.08	3.45	6.88***	3.32	3.10	6.43	4.03	4.99***
PTSD-hyperarousal	3.66	2.37	7.67	2.74	5.68***	3.48	2.42	5.60	2.27	5.52***
PTSD-total	9.79	6.63	23.15	8.68	6.73***	9.28	6.60	15.75	7.89	5.92***

Note. BDI-II = Beck Depression Inventory. ICG-r = Inventory of Complicated Grief-Revised. PCBD = Persistent Complex Bereavement Disorder. PGD = Prolonged Grief Disorder. * $p < .05$. ** $p < .01$. *** $p < .001$.

3.5. Concurrent validity of PCBD-caseness and PGD-caseness

Table 4 shows mean scores on the ICG-R, BDI-II, PTSD-clusters, and PTSD-total for people meeting and not meeting criteria for PCBD-caseness and PGD-caseness, together with *t*-tests testing for differences. Participants meeting criteria for PCBD ($N = 33$) had significantly higher levels of overall disturbed grief, depression, PTSD-clusters, and PTSD-total than participants not meeting criteria for PCBD ($n = 479$). Likewise, participants meeting criteria for PGD ($n = 92$) had significantly higher symptom-scores than participants not meeting criteria for PGD ($n = 420$). All differences were statistically significant at a Bonferroni corrected p-level of 0.05/12.

3.6. Predictive validity of PCBD-caseness and PGD-caseness

Among the 280 participants with available data at T1 and T2, the diagnostic rate for PCBD was 4.3% at T1 ($n = 12$) and 3.9% at T2 ($n = 11$), whereas the diagnostic rate for PGD was 16.8% at T1 ($n = 47$) and 8.2% at T2 ($n = 23$). Of the 11 participants meeting criteria for PCBD at T2, 6 (54.5%) did not meet these criteria at T1. Of all 23 participants meeting criteria for PGD at T2, 12 (52.2%) did not meet these criteria at T1.

In Table 4 (lower six rows), mean scores for overall disturbed grief (ICG-R total score), depression, PTSD-clusters, and PTSD-total at T2 are shown for participants meeting vs. not meeting criteria for PCBD and PGD at T1. T-tests testing for differences are also shown, revealing that people meeting criteria for caseness of both PCBD and PGD at T1 had significantly higher depression and PTSD scores at T2, compared to participants not meeting these criteria at T1. All differences, except differences between cases and non-cases of PCBD on PTSD-intrusions remained statistically significant at a Bonferroni corrected p-level of 0.05/12.

Next, we conducted six regression analyses, in which symptom-levels of overall disturbed grief, depression, the three PTSD-clusters, and PTSD-total at T2 were consecutively regressed on PCBD-caseness at T1 (coded 0 = no, 1 = yes), while controlling for the severity of these symptoms at T1. Table 5 summarizes the outcomes. Meeting criteria for PCBD-caseness at T1 predicted more severe depression, PTSD-avoidance, PTSD-hyperarousal, and PTSD-total (but not more severe overall disturbed grief and PTSD-intrusions) at T2, whilst controlling for baseline symptom-levels. Similar analyses were done with PGD-caseness at T1; see Table 6. Meeting criteria for PGD-caseness at T1 was not associated with symptom-levels of overall disturbed grief, depression, the three PTSD-clusters, and PTSD-total at T2, when controlling for baseline symptom-levels.

4. Discussion

This study evaluated psychometric properties of disturbed grief as introduced in DSM-5, named PCBD (APA, 2013) and as proposed for ICD-11, named PGD (WHO, 2018). The first aim was to examine the factor structure of DSM-5 PCBD and ICD-11 PGD. Confirmatory factor analyses showed that the DSM-5 model, with PCBD-symptoms forming three distinguishable (but related) symptom-clusters of separation distress, reactive distress, and social/identity disruption fit the data well and fit better than the one-factor and two-factor models. The DSM-5 criteria are a mixture of other proposals for criteria for disturbed grief (Boelen & Prigerson, 2012), with clinical considerations (rather than empirical evidence) underlying the distinction between these three clusters. Our findings are the first to support this distinction. This is theoretically and clinically important; if future studies replicate their distinctiveness and find that different mechanisms underpin these clusters, this could aid in refining interventions for specific components of PCBD. The ICD-11 model, with PGD-symptoms forming correlated clusters of separation distress and additional symptoms yielded a marginally acceptable fit and fit better than the one-factor model. This substantiates the notion that separation distress and other markers of disturbed grief (e.g., anger, difficulties accepting) represent distinct but related components. Notably, one-factor models of PCBD and PGD also fit the data reasonably well. This indicates that, to some extent, all individual items can be considered to represent one underlying dimension. This mirrors two recent studies in which we evaluated a novel instrument tapping PCBD and PGD (as per Prigerson et al., 2009)—called the Traumatic Grief Inventory—and found items to form a unitary dimension (Boelen et al., in press; Boelen & Smid, 2017). Notably, none of the models in our sample achieved “excellent” fit. This might be explained by low factor loadings of some of the items.

Our second aim was to determine prevalence rates for probable PCBD and probable PGD. The probable diagnostic rate for DSM-5 PCBD was much lower (i.e. 6.4%) than for ICD-11 PGD (18.0%). Accordingly, the diagnostic agreement was only ‘fair’ (Landis & Koch, 1977). This agreement is lower than expected for criteria-sets purportedly representing the same condition and contrasts with Maciejewski et al. (2016) who reported an agreement of 0.84 between PCBD and PGD.

Table 5
Summary of regression analyses with baseline PCBD-caseness and baseline symptoms predicting disturbed grief, depression, PTSD one year after baseline.

	Model		Predictor variables				
	Total R^2	F	B	SE B	Beta	ΔR^2 when entered first	ΔR^2 when entered last
DV = Disturbed grief at T2	0.65	240.56***					
Disturbed grief at T1			0.77	0.04	0.79***	0.64	0.53
PCBD-caseness (0 = no, 1 = yes)			1.19	3.92	0.01	0.10	<0.01
DV = Depression at T2	0.46	118.42***					
Depression at T1			0.58	0.05	0.58***	0.43	0.30
PCBD-caseness (0 = no, 1 = yes)			8.27	1.96	0.20***	0.16	0.04
DV = PTSD-intrusions at T2	0.37	81.33***					
PTSD-intrusions at T1			0.48	0.04	0.59***	0.37	0.31
PCBD-caseness (0 = no, 1 = yes)			0.71	0.58	0.06	0.06	<0.01
DV = PTSD-avoidance at T2	0.44	106.79***					
PTSD-avoidance at T1			0.49	0.04	0.56***	0.39	0.29
PCBD-caseness (0 = no, 1 = yes)			3.84	0.80	0.22***	0.15	0.05
DV = PTSD-hyperarousal at T2	0.41	96.79***					
PTSD-hyperarousal at T1			0.52	0.04	0.58***	0.39	0.31
PCBD-caseness (0 = no, 1 = yes)			1.97	0.60	0.16**	0.10	0.02
DV = PTSD total at T2	0.48	130.08***					
PTSD total at T1			0.53	0.04	0.62***	0.46	0.34
PCBD-caseness (0 = no, 1 = yes)			5.97	1.63	0.17***	0.14	0.03

Note. DV = Dependent Variable. PCBD = Persistent Complex Bereavement Disorder. PTSD = Posttraumatic Stess-Disorder. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 6
Summary of regression analyses with baseline PGD-caseness and baseline symptoms predicting disturbed grief, depression, PTSD one year after baseline.

	Model		Predictor variables				
	Total R^2	F	B	SE B	Beta	ΔR^2 when entered first	ΔR^2 when entered last
DV = Disturbed grief at T2	0.65	245.44***					
Disturbed grief at T1			0.81	0.04	0.83***	0.64	0.54
PGD-caseness (0 = no, 1 = yes)			−4.24	2.22	−0.08	0.10	<0.01
DV = Depression at T2	0.43	102.97***					
Depression at T1			0.65	0.05	0.65***	0.43	0.31
PGD-caseness (0 = no, 1 = yes)			0.22	1.20	0.01	0.12	<0.01
DV = PTSD-intrusions at T2	0.37	80.17***					
PTSD-intrusions at T1			0.49	0.04	0.61***	0.36	0.33
PGD-caseness (0 = no, 1 = yes)			0.02	0.32	<0.01	0.04	<0.01
DV = PTSD-avoidance at T2	0.39	88.43***					
PTSD-avoidance at T1			0.53	0.05	0.61***	0.39	0.28
PGD-caseness (0 = no, 1 = yes)			0.29	0.50	0.03	0.11	<0.01
DV = PTSD-hyperarousal at T2	0.39	88.03***					
PTSD-hyperarousal at T1			0.55	0.05	0.61***	0.38	0.29
PGD-caseness (0 = no, 1 = yes)			0.13	0.36	0.02	0.10	<0.01
DV = PTSD total at T2	0.46	117.73***					
PTSD total at T1			0.59	0.04	0.68***	0.46	0.35
PGD-caseness (0 = no, 1 = yes)			−0.20	0.99	−0.01	0.11	<0.01

Note. DV = Dependent Variable. PGD = Prolonged Grief Disorder. PTSD = Posttraumatic Stess-Disorder. * $p < .05$. ** $p < .01$. *** $p < .001$.

However, Maciejewski et al. used a prior version of the ICD-11 criteria with different symptoms and a higher threshold for meeting criteria. Specifically, their criteria required the endorsement of one of two separation distress symptoms, plus three of five additional symptoms. Thus, the ICD-11 criteria evaluated by Maciejewski et al. were more conservative and—as such—overlapped more strongly with PCBD-criteria then PGD-criteria now entering ICD-11. This points to a significant issue: while the simplification of assessment is clearly achieved with the way that PGD is defined in ICD-11, this may come at the price of many false positives in classifying disturbed grief. Although it may be premature to heighten the threshold for the number of symptoms required for a diagnosis of ICD-11 PGD, it may be important to reconsider this threshold.

Our third aim was to evaluate properties of individual PCBD-items and PGD-items. The sensitivity for a diagnosis of probable PCBD was good (i.e. > 0.75) for 10 of 15 PCBD-symptoms and worse for the other five symptoms. Three items (blame, denial/avoidance, and a desire to die) had particularly poor sensitivity, indicating that the probability that these symptoms are present in people with PCBD is low. "A desire to die to be with the deceased" had the lowest sensitivity. This accords with suggestions that this is better considered a consequence than a symptom of disturbed grief (cf. Maciejewski et al., 2016) that may however be clinically useful as it may alert the clinician to the possible presence of post-loss depression symptoms. Specificity was higher for most PCBD-criteria; yet, "yearning" had a relatively poor specificity, which is not unexpected given that yearning is a hallmark feature of both normal and disturbed grief. Sensitivity and specificity for symptoms of ICD-11 PGD were less good than for PCBD. Only three items demonstrated good sensitivity (> 0.75), including yearning, pain and sadness, and part of self died. These items thus seem relatively more accurate indicators of ICD-11 PGD. Items with poorer sensitivity (< 0.50) included guilt, anger, denial/avoidance, blame, and an inability to experience positive mood; thus, these symptoms are less prominent among in PGD-cases. Specificity was considerably higher than sensitivity and good (> 0.75) for nine of all 12 items. Again, similar to PCBD-criteria, yearning had low specificity.

The PPV of PCBD-symptoms and of PGD-symptoms was generally quite low, indicating that the presence of these symptoms did not coincide with meeting criteria for PCBD-caseness or PGD-caseness. In contrast, all PCBD-symptoms and of PGD-symptoms evidenced good NPV (> 0.80), indicating that, generally, the absence of individual PCBD-symptoms (and PGD-symptoms) coincided with not meeting criteria for PCBD-caseness (or PGD-caseness). PPVs and NPVs in a sample parallel the prevalence of a disorder in that sample. Typically, when the prevalence is low, PPV is low too and NPV is high. Indeed, the fact that PPVs were low and NPVs were high accords with the relatively low prevalence rates of PCBD-caseness and PGD-caseness in our sample. In addition, that PPV was better for PGD-items than for PCBD-items, mirrors the observation that PGD-caseness was more prevalent.

Our fourth aim was to evaluate the concurrent validity for both criteria-sets. We found that participants meeting criteria for probable PCBD-caseness evidenced higher levels of overall disturbed grief, depression, PTSD-intrusions, PTSD-avoidance, PTSD-hyperarousal, and PTSD-total compared to their counterparts not meeting these criteria. PGD-caseness was similarly associated with higher scores on these symptom-measures. These results are broadly consistent with prior evidence that both PCBD and PGD are associated with greater concurrent distress (Boelen et al., in press; Boelen & Smid, 2017; Maciejewski et al., 2016).

Several analyses were conducted using data from 280 participants who completed symptom-measures twice with a one year interval. Not unexpectedly, the point prevalence of both PCBD and PGD decreased from T1 to T2. PCBD prevalence decreased less sharply which is consistent with a stronger predictive validity of PCBD. Of the 11 PCBD-cases at T2, 6 (54.5%) had not been identified as such at T1; of the 23 PGD-cases at T2, 12 (52.2%) were no PGD-cases at T1. This may indicate clinically relevant fluctuations in grief severity, such as during anniversary reactions. Using data from these 280 participants, we found that meeting criteria for probable PCBD was associated with higher levels of depression, PTSD-avoidance, PTSD-hyperarousal, and total-PTSD (but not overall disturbed grief and PTSD-intrusions) one year later. By contrast, meeting criteria for probable PGD was not significantly associated with symptoms-levels later in time beyond baseline symptom-levels. Thus, criteria-sets differ in terms of their predictive validity, with—at least for the sample studied in our study and evidently not necessarily for other samples—PCBD evidencing stronger predictive validity than PGD.

Several limitations should be kept in mind when considering the current findings. First, items indexing symptoms were derived from various scales instead of independently validated measures of PCBD and PGD. This may have affected the outcomes. Some other prior studies have used similar strategies (e.g., Maciejewski et al., 2016), which is not unreasonable given that standardized scales tapping both concepts are not yet available. Nevertheless, future studies using such measures

are needed. A second limitation is that we relied on self-reported assessments of symptoms rather than interview-based assessments by clinicians. It is possible that the latent structure, prevalence rates, and indices of validity of PCBD and PGD are different when assessed using clinical interviews. Thirdly, our study relied on a community sample, with an overrepresentation of individuals with non-disturbed or subclinical grief, confronted with natural losses, and from a Western background. Thus, the applicability of the current findings to other groups, including help-seeking samples, individuals confronted with traumatic losses, and individuals from diverse cultural backgrounds remains to be studied.

Notwithstanding these considerations, in conclusion, this is the first comparative evaluation of criteria for disturbed grief put forth in DSM-5 and ICD-11. Our findings show that more research in this area is urgently needed given that both criteria-sets may be very different in terms of prevalence rates, performance of individual symptoms, and predictive validity.

Ethical approval

Ethical approval for conducting this study was obtained from an institutional review board (IRB).

Limitations of the study

Limitations include our reliance on self-reported data and symptoms of PCBD and PGD being derived from two scales.

Conflict of interest

The authors declare no conflicts of interest.

Author's contribution

PB, LL, and AN undertook the statistical analyses. PB and LL wrote the completed draft of the manuscript. GS assisted in study design, statistical analyses, and protocol. All authors contributed to and have approved the final manuscript.

Role of funding source

We did not receive funding for this research.

Acknowledgments

Participants are thanked for their participation in this study.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.jad.2018.07.041.

References

American Psychiatric Association, 2000. Diagnostic and Statistical Manual of Mental Disorders, fourth ed. Author, Washington DC Text Revision.
American Psychiatric Association, 2013. Diagnostic and Statistical Manual of Mental Disorders, fifth ed. American Psychiatric Publishing, Arlington, VA.
Beck, A.T., Steer, R.A., Brown, G.K., 1996. Beck Depression Inventory-II. The Psychological Corporation, San Antonio, TX.
Boelen, P.A., van den Bout, J., de Keijser, J., Hoijtink, H., 2003. Reliability and validity of the Dutch version of the Inventory of Traumatic Grief. Death Stud. 27, 227–247. https://doi.org/10.1080/07481180302889.
Boelen, P.A., Djelantik, A.A.A.M.J., Keijser, J.de, Lenferink, L.I.M., Smid, G.E., in press. Further validation of the traumatic grief inventory-self report (TGI-SR): a measure of persistent complex bereavement disorder and prolonged grief disorder. Death Stud.
Boelen, P.A., Keijser, J.de, Smid, G.E., 2015. Cognitive behavioural variables mediate the impact of violent loss on post-loss psychopathology. Psychol. Trauma Theory Res. Pract. Policy 7, 382–390. https://doi.org/10.1037/tra0000018.
Boelen, P.A., Prigerson, H.G., 2012. Commentary on the inclusion of persistent complex bereavement-related disorder in DSM-5. Death Stud. 36, 771–794.
Boelen, P.A., Smid, G.E., 2017. The traumatic grief inventory self report version (TGI-SR): introduction and preliminary psychometric evaluation. J. Loss Trauma 22, 196–212. https://doi.org/10.1080/15325024.2017.1284488.
Claycomb, M.A., Charak, R., Kaplow, J., Layne, C.M., Pynoos, R., Elhai, J.D., 2016. Persistent complex bereavement disorder symptom domains relate differentially to PTSD and depression: a study of war-exposed Bosnian adolescents. J. Abnorm. Child Psychol. 44, 1361–1373.
Cozza, S.J., Fisher, J.E., Mauro, C., Zhou, J., Ortiz, C.D., Skritskaya, N., Shear, M.K., 2016. Performance of DSM-5 persistent complex bereavement disorder criteria in a community sample of bereaved military family members. Am. J. Psychiatry 173, 919–929.
Djelantik, A.A.A.M.J., Smid, G.E., Kleber, R.J., Boelen, P.A., 2017. Symptoms of prolonged grief, post-traumatic stress, and depression after loss in a Dutch community sample: a latent class analysis. Psychiatry Res. 247, 276–281. https://doi.org/10.1016/j.psychres.2016.11.023.
Engelhard, I.M., Arntz, A., Van den Hout, M.A., 2007. Low specificity of symptoms on the post-traumatic stress disorder (PTSD) symptom scale. Br. J. Clin. Psychol. 46, 449–456. https://doi.org/10.1348/014466507X206883.
Foa, E., Riggs, D., Dancu, C., Rothbaum, B., 1993. Reliability and validity of a brief instrument for assessing post-traumatic stress disorder. J. Trauma. Stress 6, 459–474. https://doi.org/10.1002/jts.2490060405.
Hansen, M., Hyland, P., Armour, C., Shevlin, M., Elklit, A., 2015. Less is more? Assessing the validity of the ICD-11 model of PTSD across multiple trauma samples. Eur. J. Psychotraumatology 6, 28766.
Kline, R.B., 2005. Principles and Practice of Structural Equationmodeling, second ed. Guilford, New York.
Kristensen, P., Weisæth, L., Heir, T., 2012. Bereavement and mental health after sudden and violent losses: A review. Psychiatry 75, 76–97. https://doi.org/10.1521/psyc.2012.75.1.76.
Landis, J.R., Koch, G.G., 1977. The measurement of observer agreement for categorical data. Biometrics 33, 159–174.
Lundorff, M., Holmgren, H., Zachariae, R., Farver-Vestergaard, I., O'Connor, M., 2017. Prevalence of prolonged grief disorder in adult bereavement: A systematic review and meta-analysis. J. Affect. Disord. 212, 138–149. https://doi.org/10.1016/j.jad.2017.01.030.
Mauro, C., Shear, M.K., Reynolds, C.F., Simon, N.M., Zisook, S., Skritskaya, N., Wang, Y., Lebowitz, B., Duan, N., First, M.B., Ghesquiere, A., Gribbin, C., Glickman, K., 2017. Performance characteristics and clinical utility of diagnostic criteria proposals in bereaved treatment-seeking patients. Psychol. Med. 47, 608–615. https://doi.org/10.1017/S0033291716002749.
Maciejewski, P.K., Maercker, A., Boelen, P.A., Prigerson, H.G., 2016. "Prolonged grief disorder" and "persistent complex bereavement disorder", but not "complicated grief", are one and the same diagnostic entity: an analysis of data from the Yale Bereavement Study. World Psychiatry 15, 266–275. https://doi.org/10.1002/wps.20348.
Maciejewski, P.K., Prigerson, H.G., 2017. Prolonged, but not complicated, grief is a mental disorder. Br. J. Psychiatry 211 (4), 189–191. https://doi.org/10.1192/bjp.bp.116.196238.
Maercker, A., Brewin, C.R., Bryant, R.A., Cloitre, M., Reed, G.M., Van Ommeren, M., Saxena, S., 2013. Proposals for mental disorders specifically associated with stress in the International Classification of Diseases-11. Lancet 381, 1683–1685. https://doi.org/10.1016/S0140-6736(12)62191-6.
Muthén, L.K., Muthén, B.O., 1998. Mplus User's Guide, eighth ed. Muthén & Muthén, Los Angeles, CA.
Nickerson, A., Cloitre, M., Bryant, R.A., Schnyder, U., Morina, N., Schick, M., 2016. The factor structure of complex posttraumatic stress disorder in traumatized refugees. Eur. J. Psychotraumatology 7 (1), 33253. https://doi.org/10.3402/ejpt.v7.33253.
Prigerson, H.G., Horowitz, M.J., Jacobs, S.C., Parkes, C.M., Aslan, M., Goodkin, K., Maciejewski, P.K., 2009. Prolonged grief disorder: psychometric validation of criteria proposed for DSM-V and ICD-11. PLoS Med. 6 (8), e1000121. https://doi.org/10.1371/journal.pmed.1000121.
Prigerson, H.G., Jacobs, S.C., 2001. Traumatic grief as a distinct disorder: a rationale, consensus criteria, and a preliminary empirical test. In: Stroebe, M.S., Hansson, R.O., Stroebe, W., Schut, H.A.W. (Eds.), Handbook of Bereavement Research. APA, Washington, DC, pp. 613–647 Consequences, coping, and care.
Shear, M.K., Simon, N., Wall, M., Zisook, S., Neimeyer, R.A., Duan, N., Keshaviah, A., 2011. Complicated grief and related bereavement issues for DSM-5. Depress. Anxiety 28, 103–117.
Shevlin, M., Hyland, P., Vallières, F., Bisson, J., Makhashvili, N., Javakhishvili, J., 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, 138–147.
Simon, N.M., Wall, M.M., Keshaviah, A., Dryman, M.T., LeBlanc, N.J., Shear, M.K., 2011. Informing the symptom profile of complicated grief. Depress. Anxiety 28, 118–126.
Smid, G.E., Boelen, P.A., 2016. Performance of complicated grief criteria. Am. J. Psychiatry 173, 1149. https://doi.org/10.1176/appi.ajp.2016.16060704.
Tay, A.K., Rees, S., Chen, J., Kareth, M., Silove, D., 2016. Factorial structure of complicated grief: associations with loss-related traumatic events and psychosocial impacts of mass conflict amongst West Papuan refugees. Soc. Psychiatry Psychiatric Epidemiol. 51, 395–406. https://doi.org/10.1007/s00127-015-1099-x.
Van der Does, A.J.W., 2002. Handleiding Bij De Nederlandse versie Van Beck Depression Inventory, second ed. Harcourt, Amsterdam, NL (BDI-II-NL) [Manual For the Dutch version of the Beck Depression Inventory – second edition (BDI–II-NL).].
WHO 2018 ICD-11 Beta Draft. Prolonged grief disorder Criteria. https://icd.who.int/browse11/l-m/en#/http://id.who.int/icd/entity/1183832314.