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MASTER THESIS

Psychometric Properties of the TGI-SR in a Sample of Bereaved Individuals from Bali

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Abstract

Persistent complex bereavement disorder (PCBD) and prolonged grief disorder (PGD) are diagnostic entities describing disturbed grief following the loss of a loved one. The psychometric properties of measurements for the PCBD and the PGD have been evaluated in the Western culture, but not in the Hindu culture. This paper investigated the psychometric properties of the TGI-SR in a sample of 301 participants from Bali who lost a family member in a car accident. The TGI-SR is an 18-item grief self-measure scale combining the symptoms of PCBD and PGD. The factor analysis extracted three factors for all 17 PCBD items and three factors for the 11 PGD items. Our results indicate that the TGI-SR is a reliable and valid measurement and support the usability in Bali.

Grief is a natural response to the loss of a loved one (Young et al., 2012). It is associated with negative emotions, such as anger and sadness (Stylianou & Zembylas, 2018). Although grief is a very personal and unique experience (Boelen & Smid, 2017), it has been subcategorized into acute grief and integrated grief. Acute grief occurs immediately after the death, regardless of the cause. During this stage, bereaved individuals often experience severe negative and distressing emotions including shock, guilt, loneliness, emptiness, numbness or denial. Desirably bereaved individuals experience "integrated grief" within a few months. This stage can be best described as the "healing" stage, in which bereaved people re-engage and enjoy daily activities. However, not everyone transitions to this stage immediately. Some people experience prolonged-acute grief. The bereaved person is preoccupied with the deceased, while also avoiding reminders of this person. People in this stage might feel stuck and empty, which interferes with their daily activities. It has been suggested that 10% to 20% of the bereaved individuals experience prolonged acute grief (Young et al., 2012). This stage has, among other names, been described as "complicated grief", (Young et al., 2012), "complex grief", "disturbed grief" (Boelen, 2016), persistent complex bereavement disorder (PCBD), or prolonged grief disorder (PGD) (Boelen & Smid, 2017). In this paper, we aim to account for all individuals, who are experiencing dysfunctional grieving symptoms, and we will refer to prolonged grief disorder.

To measure prolonged grief disorder symptoms in the Netherlands, the Traumatic Grief Inventory-Self Report (TGI-SR) has been developed. The TGI-SR accounts for symptoms of the PGD, as described in the forthcoming 11th edition of the international classification of diseases (ICD) (Boelen, Djelantik, Keijser, Lenferink & Smid, 2018a), as well as the overlapping symptoms of PCBD, as described in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013).

Prolonged grief disorder is associated with suicidal ideations and behaviors of the grieving individual as well as a higher risk to develop comorbid psychiatric disorders, such as major depression disorder (MDD) and post-traumatic stress disorder (PTSD) (Young et al., 2012). The grieving process differs between cultures and religions (Rosenblatt, 1993). Differences include the funeral ceremonies, death perception, and social support (Wikan, 1988). In Hindu cultures, death is perceived differently than in the Netherlands. For example, they differentiate between the spirit and the body, which leads funeral ceremonies that differ substantially from those in Western cultures. Moreover, the bereaved are not to be left alone for three nights, providing them with social support and trying to make the bereaved forget their sadness. In Bali, it is commonly accepted that the bereaved only cries during the funeral and tries to be happy the remaining time (Wikan, 1988).

Several articles have examined the underlying factor structure of prolonged grief disorder. In a Dutch sample, the psychometric properties of the TGI have been evaluated as well. Boelen et al. (2018) extracted three factors for the PCBD items and two factors for the PGD items in the disaster-bereaved sample, however, the authors concluded that the TGI-SR was better represented as a unitary measurement (Boelen et al., 2018a). In a different study using the DSM-5 and forthcoming ICD-11, three factors for the PCBD items were extracted as well, but two factors for the PCD items (Boelen, Lenferink, Nickerson & Smid, 2018b). Although, when looking at the PCBD and PCD symptoms using items from the ICG-R questionnaires three factors for the PCBD items and one factor for the PCD items were extracted (Boelen, Lenferink & Smid, 2019). The underlining factors of grief have also been evaluated in samples from different countries. Han et al. (2006) analyzed the factor structure of grief using the Inventory of Complicated Grief (ICG) in a Korean sample. The authors concluded that grief would be best represented by one factor (Han et al., 2006). Underlying factors of prolonged grief disorder were also examined in a sample of West Papuan refugees.

The authors reduced prolonged grief disorder into six factors (Tay, Rees, Chen, Kareth & Silove, 2016).

The TGI-SR's psychometric properties have been tested in Dutch samples and showed good to excellent internal consistency. In addition, the authors found support for the TGI-SR's concurrent validity, incremental validity, and ecological validity. However, they did not evaluate the convergent or discriminant validity (Boelen et al., 2018a). Nevertheless, it is likely that the psychometric properties of the questionnaires differ in Hindu cultures because of a different death perception and other grieving/funeral rituals.

The present paper, a collaboration between the Netherlands and Bali, aims to investigate if the TGI-SR can be used to assess prolonged grief disorder and persistent complex bereavement disorder symptoms for bereaved individuals in the Balinese culture.

To answer this research question, we first evaluated the factor structure of the TGI-SR. Secondly, we measured the internal consistency of the TGI-SR, to see whether or not the items on the TGI-SR provide similar scores. Thirdly, we examined the convergent validity. We assumed that the scores on the TGI-SR are positively correlated with the scores on the QIDS, as some symptoms of PGD and PCBD are similar to those of depression (e.g., sadness, emotional numbness, feeling that life is empty or meaningless) (Boelen & Smid, 2017). Moreover, we assume a positive relationship between the total scores on the TGI and the total scores on the Work and Social Adjustment Scale (WSAS). Lastly, we examined the discriminant validity. We hypothesize that the correlation between the scores on the TGI-SR and the relation to the victim decreases the more distant the relation is, as recent research suggests that kinship elevates the chance of being affected by PGD (Djelantik, Smid, Kleber & Boelen, 2017). In addition, we hypothesized that the more time has passed since the loss, the lower are the TGI total scores, as most individuals experience healing with time (Young et al., 2012).

Method

Design

For this cross-sectional survey project, the names and addresses of bereaved individuals (n=301) were obtained through the administration from the University of Udayana, as well as through insurance companies and the Sanglah Hospital, which is the largest public hospital in Bali. Furthermore, participants were recruited through the snowball sampling method. The participants were asked to fill out numerous questionnaires including the TGI-SR, the QIDS, and the WSAS. In addition, all participants were questioned about multiple demographic variables, details about the nature of their relationship to the deceased, their involvement in the accident, the funeral ceremony, and information about mental illnesses the participant or his or her family might suffer from.

Participants

Included were female and male participants over the age of 18 who had lost a relative, spouse or a relative-in-law due to a traffic accident. Excluded were participants who lost someone more than three years before the study was conducted and participants who were not proficient in Bahasa Indonesia. The Balinese Language consists of multiple sub-languages. To obtain clear translations, this study was translated to only Bahasa Indonesia.

Instruments

Two bilingual public health medical doctors translated two questionnaires (TGI-SR and WSAS) from English into Bahasa Indonesia. We obtained the translation of the QIDS from a previous study administered in Jakarta (Arjadi, Nauta, Utoya & Bckting, 2017). Following, the translated questionnaires were critically reviewed, focusing on the comprehensibility, relevance and cultural appropriateness.

TGI-SR. The Traumatic Grief Inventory Self-Report consists of 18 items and was developed to assess the symptoms of PCBD and PGD. The items represent all symptoms

associated with the PCBD criteria and an additional item (Item 12), which represents a symptom of PGD. Item three to 13 represent the PGD items. Each item can be ranked on a 5-point Likert scale (Boelen et al., 2018a).

QIDS. The Quick Inventory of Depressive Symptomatology is available in a self-rating format (QIDS-SR) as well as a clinician rating format (QIDS-C). The QIDS was used for the present study. The QIDS is a 16-item questionnaire assesses diagnostic symptoms of major depressive disorder (MDD) set in the DSM-IV. The total score varies from zero to 27 on which the severity of depression can be examined. It includes the symptom criterion domains, being 1) sadness; 2) concentration; 3) self-criticism; 4) suicidality; 5) interest; 6) fatigue; 7) sleep disturbance; 8) changes in appetite/weight; and 9) psychomotor changes. The QIDS is a shortened version of the 30-item inventory of depressive symptomatology (IDS). The IDS consists of items related to the diagnostic symptoms of MDD, as well as symptoms that are associated with it, such as anxiety (Rush et al., 2003).

WSAS. The Work and Social Adjustment Scale (WSAS) measures the impact a problem has on the individual's daily activities, without providing any form of diagnosis. The questionnaire consists of five questions that are measured on a 9-point Likert scale. The maximum score is 40, while a score above 20 suggests at least moderately severe psychopathology (Mundt, Marks, Shear & Greist, 2002).

Data collection

The data were collected by interviewing the participants at home. The interviewers were recruited based on competence, commitment to the research and their study major as well as progress. Medical, psychology and public health students, who were in their last years of study, could join the project as research assistants. After being selected, they received a three-day training, including workshops on research skills and the administration of questionnaires.

Processing and analyzing the data

Firstly, we examined the characteristics of the sample. Secondly, we performed two exploratory factor analyses (EFAs) for the 17 PCBD items (item 1-11,13-18), and the 11 PGD items (item 3-13). We used principal axis factoring and oblique rotation in SPSS for each EFA. As the Factor Correlation Matrixes did display correlations > 0.32 (absolute value), there is more than 10% overlap between the factors, and we decided to use oblimin rotation in both EFAs. Thirdly, we examined the internal consistency of all three item combinations (all 18 items, the 17 PCBD items, and the 11 PGD items) by looking at Cronbach's alpha. To examine our hypothesis that total scores on the TGI-SR are positively correlated with the scores on the QIDS, we used linear regression, as both variables are continuous. We also created a scatter plot to evaluate the assumption of linearity. To measure the relationship between the continuous independent total WSAS score variable and the continuous dependent total TGI score variable, we again used a linear regression in SPSS. As aforementioned, we tested the assumption of linearity by creating a scatter plot. Lastly, we analyzed our hypothesis regarding the discriminant validity. We dichotomized the relationship variable to spouse/child and others. Having a continuous dependent variable (total TGI score) and categorical independent variable (relationship to victim) with two groups, we performed an independent samples T-test in SPSS. In order to examine the relationship between the two continuous variables time since loss and TGI total score, we carried out a linear regression in SPSS. In addition, we created a scatter plot to, as previously mentioned, test the assumption of linearity. For all analyses, we used IBM SPSS Statistics for Windows, Version 25.0.

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Results

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Descriptive statistics of the sample

The Characteristics of the sample are illustrated in Table 1. The sample consists of 301 participants, of which 57.1% are male, and 42.9% are female. The average age is 44, with a range from 18 to 89. Most of the participants lost their child (29.6%), followed by their spouse (19.6%), their father (17.3%), their mother (15%), their sibling (15%), their grandchild (1.3%), their brother-in-law (1%), their son-in-law (0.7%), and their nephew (0.3%). 41.9% of the participants had a high-school education. Nineteen point six percent had middle school as their highest level of education, and another 19.6% received a college education. Fifteen point three percent of the participants graduated only from elementary school, whereas the remaining 3.7% did not graduate or attend school at all. All participants are religious, with the majority (95%) identifying as Hindu. Most participants did not have a psychiatric (99.7%) or medical (81.4%) history. A portion of 94.7% of the participants (285 in total) lived together with the victim before the accident.

As illustrated in Table 2, none of the participants seem to suffer from PCD or PCBD based upon the cut-off scores of the TGI. One point three percent of the participants scored above the diagnostic cut-off point for PTSD. Twenty point six percent would be considered mildly to moderately depressed based on the QIDS.

Factor structure of the TGI-SR

To examine the factor structure of the TGI-SR, we ran two EFAs using all 17 PCBD items, and all 11 PGD items. After running the analysis for the PCBD items, the Kaiser-Meyer-Olkin (KMO) resulted in .84. Bartlett's test of sphericity was statistically significant (p<0.001), suggesting that EFA could be carried out. The EFA with the 17 PCBD items yielded similar results. Four factors had an eigenvalue greater than one, explaining for 33.62% (Factor 1), 47.35% (Factor 1 and 2), 55.31% (Factor 1-3), and 61.64% (Factor 1-4) of the variance. Since the first two-three factors again explain for about 50% of the variance, one could only focus on them. Looking at the number of variables, one can conclude that the

number of factors should lie between three and six (17/5> #factors> 17/3). With four factors, 14% of the nonredundant residuals are larger than 0.05 in absolute value, indicating that no more than four factors are needed. However, we aimed to find a parsimonious solution and based on the scree plot, the percentage explained variance, as well as the interpretability of the factors, we decided to run the analysis again extracting three factors. With three factors, 24% of the nonredundant residuals are larger than 0.05 in absolute value, indicating that three factors are sufficient. As illustrated in Table 3 item 4, 7, 9, 13, 14, 15, 16, and 18 loaded above .40 on the first factor (preoccupation with loss/social disruption), item 1, 2, 3, 10, and 11, 18 loaded above .40 in absolute value on the second factor (negative emotions), and item 5, 6, and 8 loaded above .40 in absolute value on the third factor (avoidance/anger). Item 17 did not load above .40 on any factor.

After running the analysis for the 11 PGD items, the Kaiser-Meyer-Olkin (KMO) resulted in .84. Bartlett's test of sphericity was statistically significant (p<0.001), suggesting that EFA could be carried out. When running an EFA, three factors with an eigenvalue greater than one were extracted. The first factor accounted for 42,1% of the variance, Factor one and 2 factor 2 for 58.35%, and factor one to three for 68.74%. It could be argued to only extract two factors, as they explain over 50% of the variance. Looking at the number of variables, one can conclude that the number of factors should range between two and four (11/5> #factors> 11/3). With three factors, 5% of the nonredundant residuals are larger than 0.05 in absolute value, indicating that no more than three factors are needed. Trying to find a parsimonious solution, we also ran the model with only two factors. However, the factors were better interpretable with the three-factor model. Item 3, 10, 11, and 12 loaded above .40 on the first factor, item 4, 7, 9, and 13 on the second factor and item 5, 6, and 8 on the third factor as shown in Table 4. We labeled to factors; emotional pain, confusion/preoccupation with the loss, and avoidance/anger.

Reliability of the TGI-SR

The internal consistency of the entire TGI-SR, including all 18 items, was .88. Cronbach's alpha of the TGI-SR, including only the 17 PCBD items was .86. The TGI-SR, using only the 11 PGD items, had an internal consistency of .85. Deleting an item would not substantially increase Cronbach's alpha in any of the items mentioned earlier groupings.

Convergent Validity

The scatter plot shows that there is a small deviation from linearity between the variables. A linear regression was performed to predict the total TGI score based on the total QIDS score, $\beta = .31$, $t(297) = 5.59$, $p < .001$. The total QIDS score was a significant predictor. Not all assumptions of a linear regression are met. The observations might not be independent of each other, as family members participated in the study. Moreover, the assumption of normally distributed residuals is not clearly met, as the histogram is slightly skewed to the right. The Kolmogorov-Smirnov test was significant as well. The assumption of homoscedasticity is violated as well. However, the assumption of the absence of multicollinearity is met, as the Variance Inflation Factor is below 10 (VIF=1).

The relationship between the total WSAS scores and the total TGI scores is linear, as the scatter plot illustrates. A simple linear regression was calculated to predict the total TGI score based on the total WSAS score, $\beta = .64$, $t(297) = 14.17$, $p < .001$. The total WSAS score was a significant predictor. Not all assumptions of a linear regression are met. The observations might not be independent of each other, as family members participated in the study. The assumption of homoscedasticity is not met. Furthermore, the standardized residuals are slightly skewed to the left. Moreover, the assumption of the absence of multicollinearity is met, as the Variance Inflation Factor is below 10 (VIF=1).

Discriminant Validity

Since the Levene's test of Equality of Variances is significant, equal variances are not assumed. On average, participants who lost a child or a spouse had a higher TGI total score ($M = 15.34$, $SE = .7$) than those who lost a different family member ($M = 11.85$, $SE = .56$) conditions; $t(282.29) = 3.89$, p < .001.

The scatter plot with the variables TGI-SR total score and time since loss showed that there is a deviation from linearity. A linear regression was performed to predict the total TGI score based on the time since the loss, $\beta = -.02$, $t(293) = -.25$, $p < .001$. The time since the loss was a significant predictor. However, not all of the assumptions of a linear regression are met. The observations might not be independent of each other, as family members participated in the study. The assumption of homoscedasticity is not met. The assumption of normally distributed residuals is violated. Furthermore, the assumption of the absence of multicollinearity is met, as the Variance Inflation Factor is below 10 (VIF=1).

Discussion

The current study investigated whether the TGI-SR can be used in the Balinese population by examining the underlying factors of grief in Bali, the internal consistency of the TGI-SR with all item combinations, as well as the TGI-SR's convergent and discriminant validity. The TGI-SR showed good internal consistency for all item combinations, indicating that the scale indeed measures what it intends to measure. The factor analyses yielded three factors for the PCBD as well as the PGD items. Our validity hypotheses were confirmed, supporting the TGI-SR's convergent and discriminant validity.

As previously stated, the EFA yielded in three factors underlying the PCBD items; (1) preoccupation with loss and social disruption, (2) negative emotions, and (3) avoidance and anger. These factors are all possible PCBD symptoms in the DSM-5. Notably, the sub factor social disruption seems only to occur, or at least explain more total variance, in lower income countries. Whereas social disruption is part of our first factor, it is comparable with the third

factor (social/diminished identity) of a study evaluating the factor structure of grief with the ICD-11 in the Netherlands (see Table 3 for comparisons in symptom domains for PCBD; Boelen et al., 2018b). Interestingly, Tay et al. (2016) came to a similar conclusion. In the population of West Papuan refugees, a comparable factor (confusion/diminished identity) was found, whereas such a factor was not included in a six-factor model based on a sample of bereaved individuals in the US (Simon et al., 2011). However, the latter study was conducted using the Inventory of Complicated Grief (ICG) scale, which does not include an item that is comparable with the TGI-SR's fourth item "I felt confusion about my role in life, or a diminished sense of identity". Nonetheless, one could conclude that the bereaved individuals in high-income countries suffer less from self or social identity disruptions when grieving than bereaved individuals in low-income countries.

Item 17 "I experienced a desire to die in order to be with the deceased" did not load highly on any of the factors, indicating that this is a feeling not strongly associated with grieving in Bali. As aforementioned, the social support in Bali following loss differs noticeably from the social support in Western cultures. Based on our findings, one could conclude that the presence of the loved ones right after the loss in Bali (Wikan, 1988) prevent the bereaved from suicidal ideations. In line with this interpretation Lobb et al. (2010) reviews that a stable support system is associated with a decreased risk of disturbed grief. However, social support might not be the only influence on this finding. The suicide rate in Bali is overall lower than the world average. Moreover, the Hindu religion views suicide very negatively, as an offense against the gods, which will lead to punishment in the next life (Kurihara, Kato, Reverger & Tirta, 2009).

The EFA with the 11 PGD items yielded three factors; (1) emotional pain, (2) confusion and preoccupation with loss, and (3) avoidance and anger. These factors are not surprising, as they represent the proposed diagnostic criteria for PGD in the forthcoming

ICD-11. One notable difference is that the forthcoming ICD-11 will not include a specific avoidance symptom, but comparable emotions such as denial and anger (Killikelly & Maercker, 2018). Comparable with our finding that avoidance is an underlying factor of PGD are the findings of Boelen and van den Bout (2010). They concluded that avoiding confrontation with the reality of the loss affected the explained variance in PGD severity. Moreover, avoidance of reminders of the deceased was found to be a symptom of PGD (Prigerson et al., 2009). An EFA from a previous validation study of the TGI-SR in a disaster-bereaved sample from the Netherlands yielded two factors based on eigenvalues greater than one (see Table 4 for comparisons in symptom domains for PGD; Boelen et al., 2018a). However, the authors decided to pursue a one-factor model based on the interpretability and the scree plot. This indicates that prolonged grief disorder as a concept is differently perceived in the Balinese and Hindu culture.

By looking more closely at the different factor loadings, the exceptional high factor loading of the item "I felt numb over the loss" on the first factor stands out. One could assume that this finding is also associated with the grieving rituals in Bali. Commonly, the bereaved individuals only cry mildly at the graveyard or when being alone to avoid saddening others (Wikan, 1988). Feeling unable to cry publicly seems comparable with the numbness item. Taking this into consideration, it is not surprising that numbness has a substantial influence on the factor of emotional pain.

Comparing the factors underlying grief using the PCBD factors with the factors using the PGD, the idea of "preoccupation with loss" should be further discussed. In our study, it is part of the first factor of grief using the PCBD factors and part of the second factor using the PGD items. This finding is not surprising, given the different symptoms needed for a diagnosis for the PCBD in the DSM-5 and the PGD in the forthcoming ICD-11. Both diagnoses share the symptom "preoccupation with deceased", while the PCBD includes

another symptom "preoccupation with circumstances of death" (Boelen & Smid, 2017).

Taken together, our findings are in line with the different diagnostic criteria as the idea of

preoccupation with loss seems more substantial when using the PCBD items.

The reliability of the entire TGI-SR, the 17 PCBD items, and the 11 PGD items, lies

between .85 and .88. Boelen et al. (2018a) found results between .88 and .95 among different

samples for the item combinations. The results of the present study illustrate a good, but not

as high as in the Dutch sample, internal consistency in the Bali sample confirming the

reliability of the TGI-SR.

Our two analyses of validity confirm our hypotheses. The relationship between the

TGI-SR and the QIDS is indeed positive, as well as the relationship between the TGI-SR and

the WSAS. Previous studies, such as Boelen et al. (2018a) did not measure convergent

validity as they did not include a measure similar to the TGI-SR. Our study picked up their

limitation and taken together; our results do support the TGI-SR's convergent validity.

Boelen et al. (2018a) also acknowledged the limitation that they did not include a

discriminant validity measure, because they lacked a measurement that is conceptually

dissimilar to the TGI-SR. We used the relationship to the victim and the time since the loss to

evaluate the TGI-SR's discriminant validity. Indeed, we found that a closer the relationship to

the victim (losing one's child or spouse as opposed to other family members) resulted in

higher TGI-SR scores. In addition, we found a negative relationship between the TGI-SR and

the time since the loss. These results are consistent with our hypotheses and support the TGI-

SR's discriminant validity.

The findings of this paper should be interpreted in light of its limitations. Firstly,

some participants were recruited through the snowball method. This method could lead to the

sampling bias, as subjects often nominate people they know well and possibly share similar

characteristics with, which limits the generalizability of the findings. In this study, members

of the same family participated indicating that the observations might not be independent of each other. This leads to the second point that not all assumptions of the linear regressions are met, suggesting that one should interpret the results with caution. Thirdly, all variables were based on self-report measurements. Although they are often used and highly accepted, self-report measurements require skills such as introspective ability, honesty, and understanding, which means that scores from self-report measurements might be different from the true values. Lastly, our data collection limits the types of validities we were able to analyze. Some types of validity require that the same construct has been measured with multiple questionnaires or that the construct has been measured at different points in time. Our data do not fulfill these requirements.

Notwithstanding these limitations, our evaluation of the psychometric properties of the TGI-SR provides a good overview and answers our research question. Our research also provides the first psychometric evaluation of the TGI-SR in a sample of individuals from Bali. Our large sample consists of individuals from different ages, gender, and educational level, which indicate an adequate representation of the adult, bereaved population in Bali. Finally, we measured the TGI-SR's convergent and discriminant validity with two analyses each, which strengthens our findings.

Future research should keep validating the TGI-SR with different samples to ensure it can be used in other cultures and countries. In addition, it would be interesting to know how the factor structure differs among other cultures. It would provide more insight into how variables such as religion and culture impact the underlying factors of grief.

Our results imply that the TGI-SR can be used in the Balinese culture. However, our findings suggest that grief has different underlying factors between cultures/countries. This implies that grief counselors, psychiatrists, as well as psychotherapist should pay special attention to the bereaved's background and take it into account when supporting them.

Table 1.

Socio-demographic Characteristics of the Sample

Characteristics	Values
Time since loss (range, mean)	83-936, 485.63
Age Victim (range, mean)	5-85, 43.99
Sex Victim, n (%)	
Man	201 (66.8)
female	100 (33.2)
Relation to the victim, n (%)	
Father	52 (17.3)
Mother	45 (15)
Child	89 (29.6)
Spouse	59 (19.6)
Sibling	45 (15)
Grandchild	4 (1.3)
Brother-in-law	3 (1)
Son-in-law	2 (0.7)
Nephew	1 (0.3)
Relation to victim (dichotomous), n (%)	
Spouse/Child	148 (49.2)
Other	153 (50.8)
The victim provided the main income in the family, n (%)	
Yes	122 (40.5)
No	179 (59.5)
Sex Participant, n (%)	

Females	129 (42.9)
Males	172 (57.1)
Age Participant, mean (Minimum-Maximum)	44.16 (18-89)
Education, n (%)	
Not finished school/not at school	11 (3.7)
Elementary school	46 (15.3)
Middle school	59 (19.6)
High school	126 (41.9)
College	59 (19.6)
Religion, n (%)	
Hindu	286 (95)
Islam	10 (3.3)
Buddhism	3 (1)
Christian	2 (0.7)
Medical history, n (%)	
Yes	56 (18.6)
No	245 (81.4)
Psychiatric history, n (%)	
Yes	1 (0.3)
No	300 (99.7)
Together with the victim before the accident, n (%)	
Yes	285 (94.7)
No	16 (5.3)
The frequency of meeting the victim, n (%)	
Daily	284 (94.4)

Weekly	14 (4.7)
2-3 times a month	1 (0.3)
Less often than once a month	2 (0.7)
TGI TOTAL SCORE, Mean (Minimum-Maximum)	13.57 (1-41)
QIDS (Corrected) TOTAL SCORE, Mean (Minimum-Maximum)	3.1 (0-14)
WSAS TOTAL SCORE, Mean (Minimum-Maximum)	2.66 (0-24)

Note. TGI= Traumatic grief inventory; QIDS= Quick inventory of depressive symptomatology; WSAS= Work and social adjustment scale.

Table 2

Caseness for Grief and Depression in the Sample

Characteristics	Values
TGI total score mean (SE)	13.57 (0.46)
People scoring above cut-off point for PCBS	0 (0)
People scoring above cut-off point for PGD	0 (0)
QIDS (corrected) total score mean (SE)	3.1 (0.16)
People scoring above cut-off point for no depression, n (%)	239 (79.4)
People scoring above cut-off point for mild depression, n (%)	57 (18.9)
People scoring above cut-off point for moderate depression, n (%)	5 (1.7)
People scoring above cut-off point for severe depression, n (%)	0 (0)
People scoring above cut-off point for very severe depression, n (%)	0 (0)

Note. TGI= Traumatic grief inventory; QIDS= Quick inventory of depressive symptomatology.

Table 3

Factor Loadings of the PCBD items in Comparison With Previous Studies

Item	Three-Factor model of PCBD			One-factor model (Boelen et al., 2018a)	Three-factor model (Boelen et al., 2018b)[a]	Six-factor model (Simon et al., 2011)[b]	Six-factor model (Tay et al., 2016)[c]
	PS	NE	A				
1 I had intrusive thoughts and images associated with his/her death	.02	**-.70**	-.14	.47	SD	HD	YP
2 I experienced intense emotional pain, sorrow, or pangs of grief	-.00	**-.77**	-.03	.65	SD	YP	YP
3 I felt a strong longing or yearning for the deceased	.14	**-.68**	.15	.63	SD	YP	YP
4 I felt confusion about my role in life, or a diminished sense of identity	**.69**	-.03	-.07	.66	SID	-	CD
5 I had trouble to accept the loss	.01	-.13	**-.72**	.62	RD	SD	SD
6 I avoided places, objects or thoughts reminding me of his/her death	.05	-.25	**-.46**	.53	RD	BC	BC
7 I found it difficult to trust others	**.77**	.09	-.23	.50	SID	EO	BC
8 I felt bitter or angry about the loss	.24	.01	**-.69**	.44	RD	AB	AN
9 I experienced difficulty to move on with my life (e.g., pursue friendships, activities)	**.69**	-.01	-.16	.72	SID	-	CD
10 I felt numb over the loss	-.07	**-.88**	.01	.38	RD	YD	SD

		PS	NE	A		a	b	c
11	I felt that life is meaningless or empty without the deceased	-.04	**-.81**	-.15	.78	SID	-	EI
13	I noticed that my functioning (in my work, private life, and/or social life) was seriously impaired as a result of his/her death	**.40**	-.03	-.14	.69	SID	YD	EI
14	I had intrusive thoughts and images associated with the circumstances of his/her death	**.57**	-.02	-.14	.53	SD	-	YP
15	I had difficulties with positive reminiscing about the deceased	**.45**	-.09	.09	.50	RD	-	SD
16	I had negative thoughts about myself in relation to the deceased or the death (e.g., self-blame)	**.41**	-.06	-.07	.45	RD	-	AN
17	I experienced a desire to die in order to be with the deceased	.28	.01	-.01	.52	SID	-	BC
18	I felt alone or detached from other people	**.68**	.03	.24	.67	SID	YD	EI

Note. Factor loading > .40 from the present study are in boldface. *PS* preoccupation with loss/social disruption, *NE* negative emotions, *A* avoidance/anger

[a] The factors identified in Boelen et al. (2018b) include *SD* separation distress, *RD* reactive distress, *SID* social/identity disruption

[b] The factor analysis in Simon et al. (2011) yielded in a six-factor solution. *YP* yearning and preoccupation with the deceased, *AB* anger and bitterness, *SD* shock and disbelief, *EO* estrangement from others, *HD* Hallucinations of the deceased, *BC* Behavioural change including avoidance or proximity seeking

[c] The factors identified by Tay et al. (2016) include *YP* yearning/preoccupation, *SD* shock/disbelief, *AN* anger/negative appraisal, *BC* behavioural change, *EI* estrangement from others and impairment, *CD* confusion and diminished identity

Table 4

Factor Loadings of the PGD items in Comparison With Previous Studies

Item	Three-factor model of PGD			One-factor model (Boelen et al., 2018a)[a]	Three-factor model (Boelen et al., 2018b)[b]	Six-factor model (Simon et al., 2011)[c]	Six-factor model (Tay et al., 2016)[d]
	EP	CP	A				
3 I felt a strong longing or yearning for the deceased	**.53**	.21	.12	.59	SD	YP	YP
4 I felt confusion about my role in life, or a diminished sense of identity	.02	**.73**	.03	.63	AS	-	CD
5 I had trouble to accept the loss	.04	-.07	**-.91**	.65	AS	SD	SD
6 I avoided places, objects or thoughts reminding me of his/her death	.19	.13	**-.42**	.50	AS	BC	BC
7 I found it difficult to trust others	-.05	**.77**	-.11	.49	AS	EO	BC
8 I felt bitter or angry about the loss	-.01	.29	**-.58**	.45	AS	AB	AN
9 I experience difficulty to move on with my life (e.g., pursue friendships, activities)	.03	**.83**	.05	.73	SD	-	CD
10 I felt numb over the loss	**.99**	-.10	.02	.72	AS	YP	SD
11 I felt that life is meaningless or empty without the deceased	**.85**	-.03	-.15	.80	AS	-	EI
12 I felt shocked or stunned by his/her death	**.75**	-.04	-.15	.55	AS	-	-
13 I noticed that my functioning (in my work, private life, and/or social life) was seriously impaired as a result of his/her death	.02	**.43**	-.07	.70	SD	YP	EI

Note. Factor loading > .40 from the present study are in boldface. *EP* emotional pain, *CP* confusion/preoccupation with the loss, *A* avoidance/anger

[a] The factors identified in Boelen et al. (2018b) include *SD* separation distress, *AS* additional symptoms

[b] The factor analysis in Simon et al. (2011) yielded in a six-factor solution. *YP* yearning and preoccupation with the deceased, *AB* anger and bitterness, *SD* shock and disbelief, EO estrangement from others, *HD* Hallucinations of the deceased, *BC* Behavioural change including avoidance or proximity seeking

[c] The factors identified by Tay et al. (2016) include *YP* yearning/preoccupation, *SD* shock/disbelief, *AN* anger/negative appraisal, *BC* behavioural change, *EI* estrangement from others and impairment, *CD* confusion and diminished identity

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