

**Validation of the Traumatic Grief Inventory – Self-Report (TGI-SR) in a population of
Dutch adults with psychotrauma related problems**

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In deze studie is de betrouwbaarheid inhouds- en constructvaliditeit van de Traumatic Grief Inventory - Self-report (TGI-SR) onderzocht onder patiënten met psychotrauma gerelateerde klachten (leeftijd 18-75 jaar, $n = 364$). De BSI-53, WHOQOL-BREF, HTQ-16 en de TGI-SR zijn afgenomen tussen oktober 2013 en mei 2014 bij Stichting Centrum '45 in Nederland. Cronbach's α wees op een goede interne consistentie van de TGI-SR (.96). Een principale componenten analyse (PCA) onderscheidde twee factoren binnen de TGI-SR. Pearson correlatie wees uit dat de TGI-SR positief correleert met de BSI-53 ($r = .58$, $p < .01$) en de HTQ-16 ($r = .55$, $p < .01$). De TGI-SR was negatief gecorreleerd met de schalen van de WHOQOL-BREF: fysieke gezondheid ($r = -.46$, $p < .01$), sociale relaties ($r = -.33$, $p < .01$), omgeving ($r = -.42$, $p < .01$), psychologische gezondheid ($r = -.42$, $p < .01$) en de algehele kwaliteit van gezondheid ($r = -.38$, $p < .01$). Post hoc vergelijkingstoetsen (Tukey HSD) wezen uit dat vluchtelingen en asielzoekers hoger scoorden ($p < .05$) op de TGI-SR in vergelijking met veteranen, de eerste en tweede generatie overlevenden van de WOII, medewerkers van publieke hulpdiensten en mensen getraumatiseerd door andere gebeurtenissen. Geconcludeerd kan worden dat de TGI-SR over een goede betrouwbaarheid en construct validiteit bezit. Ondanks dat de items niet laadde op de factoren zoals voorspeld is de inhoudsvaliditeit goed bevonden, gezien al de items substantieel bijdroegen aan de TGI-SR. Limitaties en suggesties voor vervolgonderzoek worden besproken in deze studie.

Sleutelwoorden: Pathologische rouw, trauma, validering, factoranalyse, Traumatic Grief Inventory.

Validation of the Traumatic Grief Inventory – Self-Report (TGI-SR) in a population of Dutch
adults with psychotrauma related problems

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This study determined the reliability, content and construct validity of the Traumatic Grief Inventory – Self-Report (TGI-SR) in a sample of patients with psychotrauma related problems (age 18-75 years, $n = 364$). Between October 2013 and May 2014, assessment took place with the BSI-53, WHOQOL-BREF, HTQ-16 and the TGI-SR at Foundation Centrum '45 in the Netherlands. Cronbach's α showed that the TGI-SR has a good internal consistency (.96). A principal component analysis (PCA) produced a two-factor solution. Pearson correlation showed that the TGI-SR is positively correlated with the BSI-53 ($r = .58, p < .01$) and the HTQ-16 ($r = .55, p < .01$). The following domains from the WHOQOL-BREF were negatively correlated with the TGI-SR: physical health ($r = -.46, p < .01$), social relationships ($r = -.33, p < .01$), environment ($r = -.42, p < .01$), psychological health ($r = -.42, p < .01$) and the general quality of health ($r = -.38, p < .01$). Post hoc comparisons (Tukey HSD) showed that refugees and asylum seekers had a higher score ($p < .05$) on the TGI-SR compared to veterans, first and second generation survivors of WWII, public service employees and people traumatised by other events. Results indicate that the TGI-SR is a reliable instrument and has good construct validity. Despite the fact that the items were not loading on the factors as predicted, the TGI-SR has good content validity as all items add substantially to the TGI-SR. Limitations and suggestions for further research are proposed in this study.

Keywords: Pathological grief, trauma, validation, factor analysis, Traumatic Grief Inventory

The loss of a loved one is a tragic event, which many people have to unfortunately encounter in their lifetimes. It can lead to higher risks of developing physical impairments, depression, substance abuse, frequent use of medical services, reduction in social participation, a higher possibility of mortality due to suicide or an overall reduction in well-being (Ott, 2003; Prigerson et al., 1996; Stroebe, Schut, & Stroebe, 2007; Szanto, Prigerson, Houck, Ehrenpreis, & Reynolds III, 1997; Utz, Carr, Nesse, & Wortman, 2002). The loss of a close friend or relative is difficult to overcome, nevertheless only a small minority develops persistent grief complications (Stroebe, Schut, & Stroebe, 2005). The prevalence of people who cope with complicated grief symptomatology in the general population is between 2.4% and 6.7% (Fujisawa et al., 2010; Kersting, Brähler, Glaesmer, & Wagner, 2011). Complicated grief reactions are characterised by a persistent maladaptive preoccupation with the deceased, where the feeling of disbelief and resistance to accept the loss is predominant. Normal grief reactions differ from complicated grief generally in intensity and or persistency (Bonanno & Kaltman, 2001; Lichtenthal, Cruess, & Prigerson, 2004).

Complicated grief was recently adopted as a novel psychiatric diagnosis in the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) from the American Psychiatric Association (APA, 2013), as Persistent Complex Bereavement Disorder (PCBD). In addition, it has been proposed for inclusion in the International Classification of Diseases (ICD-11) from the World Health Organisation (WHO) as Prolonged Grief Disorder (PGD). Pathologic grief can be diagnosed when bereavement causes intense distress or functional impairment. The distress should persist for more than 12 months in the case of bereaved adults and for more than 6 months for bereaved children since the loss of a significant other with whom the bereaved person had a close relationship (APA, 2013). The symptomatology for maladaptive forms of

grief varies across research. To avoid confusion the term pathological grief will be used in this study.

Over the last decades, several self-reports have been developed to assess symptoms of grief. A frequently used instrument is the Hogan Grief Reaction Checklist (HGRC) (Hogan, Greenfield, & Schmidt, 2001). Validation of the checklist revealed that the test includes symptoms of panic behavior, detachment, and cognitive disorganization, however it has not been proven that these symptoms are indicators to distinguish normal grief from pathological grief (Hogan et al., 2001). The Texas Revised Inventory of Grief (TRIG) is another generally used test to measure grief (Faschingbauer, Ziok, & DeVaul, 1987). However, Prigerson and colleagues (1995) noted that the TRIG includes items, which are not maladaptive to grief, while excluding items which can be seen as harmful in a normal grief process. The Inventory of Traumatic Grief (ITG) was developed by Prigerson and Jacobs (2001) to measure specifically maladaptive symptoms of grief. The ITG was significantly better at differentiating persons with grief impairments compared with the TRIG (Prigerson & Jacobs, 2001). Although the ITG possesses good psychometric properties, this instrument will become less useful in clinical practice as it does not include the recent standardized symptoms of pathological grief from the DSM-5 and the ICD-11.

The TGI-SR (Traumatic Grief Inventory – Self-Report) is a newly designed 18 items measure of pathological grief, based on the new prescribed symptoms of PCBD and PGD from the DSM-5 and ICD-11 (Boelen, de la Rie, & Smid, 2014). Yet, no research has studied the psychometric properties of this instrument. Therefore, the aim of this study was to determine whether the TGI-SR is an adequate measurement that can be used by clinicians in their diagnostic evaluations and eventually therapy indications. To establish content validity, the

factor structure of the TGI-SR was examined. Content validity is the degree to which separate items accurately represent and cover the construct that is intended to be measured (Field, 2009). Based on prior studies and expert discussions, the concept of grief was divided into two different components: *separation distress* (intense yearning and craving for the lost one, being preoccupied with the loss and scrupulous searching for the deceased) and *traumatic distress* (feelings of anger, shock, stunned and disbelief about the death, mistrusting others, detachment from others and experiencing somatic symptoms of the deceased) (Prigerson et al., 1999). However, a factor analytical study of the Dutch version of the ITG indicated that the ITG consist of only one factor (Boelen, van den Bout & Hoijtink, 2003). These findings were in accordance with prior factor analytic research, where maladaptive symptoms of grief formed a one-dimensional structure (Chen et al., 1999; Prigerson et al., 1995).

Despite the fact that more studies have frequently shown that symptoms of pathological grief cluster together as one factor (Boelen & Hoijtink, 2009; Newson, Boelen, Hek, Hofman, & Tiemeier 2001; Prigerson et al., 2009), PCBD is included in the DSM-5 as a disorder divided into two factors within criterion C (APA, 2013). The following components are stated: *reactive distress to the death* (difficulty accepting the death, feelings of bitterness and anger, excessive avoidance of the loss, experiencing disbelief and emotional numbness, maladaptive appraisals about oneself in relation to the death) and *social/identity disruption* (a desire to die, difficulty trusting others, feeling alone or detached, feeling life is meaningless, confusion about one's role in life and difficulty or reluctance to pursue interests) (APA, 2013).

Boelen and Prigerson (2012) argue that there is a lack of reliability and validity for the inclusion of the two separable factors for PCBD in the DSM-5. Only two factor analytical studies have delivered evidence that pathological grief form a multidimensional construct (Holland &

Neimeyer, 2011 Simon et al., 2011). Holland & Neimeyer found that pathological grief consist of separation and traumatic distress, which is in agreement with the earlier proposed factors by Prigerson and colleagues (1999). Simon and his colleagues demonstrated that the Inventory of Complicated Grief (ICG) consisted of 6 factors in a subsample of identified cases of complicated grief. However, a single factor solution was the best fit for the whole sample including cases and noncases of pathological grief. The factors within criterion C for PCBD in the DSM-5 are not based on the factors proposed by Simon and colleagues (2011), Holland and Neimeyer (2011) and Prigerson and colleagues (1999).

To advance future diagnosis it is important to gain more knowledge about the internal structure of pathological grief by examining the psychometric properties of the TGI-SR based on the novel criteria from the DSM-5 and the ICD-11. This will contribute to an improvement for psychologists in identifying individuals who struggle with bereavement and generate correct treatment indications. Treatment specifically designed for pathological grief appears to be most effective for individuals who suffer from clinical levels of PCBD and PGD (Stroebe et al., 2005; Shear & Shair, 2005). In accordance with the previous findings it was expected that the TGI-SR would produce a one-factor structure.

To establish construct validity, the TGI-SR was compared with questionnaires which measured general distress, post-traumatic stress and the quality of life. Construct validity is the extent to which a particular test relates to outcomes of other tests, and to what extent the test is consistent with the theoretically derived hypotheses concerning the concepts or constructs that are being measured (Field, 2009). Several studies have generated evidence that pathological grief, depression and anxiety are related but distinguishable syndromes (Chen et al., 1999; Prigerson et al., 1996). Boelen and his colleagues (2003) found that the ITG shared 42% variance

with depression and 34% variance with anxiety, as measured with the symptom checklist (SCL-90). Therefore it was expected that the TGI-SR would correlate positively with the Brief Symptom Inventory (BSI-53) (a shorter version of the SCL-90), which measures general distress.

In addition, research has demonstrated that there is a substantial overlap and interplay of symptoms between pathological grief and a post-traumatic stress disorder (PTSD) (Raphael, 1997; Raphael & Martinek, 1997; Stroebe, Schut, & Finkenauer, 2001). For example, loss and trauma can overlap when the circumstances of the death of a significant other involve violent acts (Raphael & Martinek, 1997). Losses due to unnatural causes in which violence played a role, may lead to a more complex process of post-traumatic grief reactions (Jacobs, 1999; Jacobs, Mazure, & Pirgeron, 2000). PTSD can hinder the occurrence of a normal grief process by reliving the circumstances that occurred during the loss (Reynolds et al., 1999). Based on these findings it was predicted that the TGI-SR would correlate positively with the Harvard Trauma Questionnaire (HTQ-16), which measures symptoms associated with PTSD.

Taking into account that violent losses (due to accidents, homicide or suicide) can lead to more complex patterns of pathological grief than non-violent losses, it is relevant to examine if the proposed criteria for pathological grief perform differently across the groups within this sample. Refugees cope with war-related trauma's, as many have been exposed to violations of human rights when they escaped from conflict area's; murders of multiple friends and family, torture and prosecution (Mollica et al., 1993). Earlier findings reported higher prevalence rates of pathological grief amongst refugees (Craig, Sossou, Schnak & Essex, 2008). In line with these outcomes, it was predicted that refugees and asylum seekers would score higher on the TGI-SR compared to the other groups within the sample.

Finally, as previously noted pathological grief is associated with an overall reduced quality of life. Pathological grief patients had a higher prevalence rates of serious medical conditions; cardiac disease, hypertension, cancer, immunological deficiency (Prigerson et al., 2009). Along these lines it was expected that the TGI-SR would correlate negatively with the WHOQOL-BREF, which measures the quality of life.

Method

Participants

The data were derived from 364 patients who were referred for trauma treatment. From all the patients 220 ($M_{\text{age}} = 49.13$ years, $SD = .72$) were men and 144 ($M_{\text{age}} = 52.07$ years, $SD = 1.01$) were woman. The sample consists of veterans ($n = 56$), refugees and asylum seekers ($n = 107$), first generation survivors of WWII ($n = 19$), second generation survivors WWII ($n = 126$), public service employees (policemen, caregivers and employees in public transport) ($n = 46$) and people traumatised by other events ($n = 9$). The TGI-SR scores revealed that 72.2% of all the participants had an indication of pathological grief. Based on the intakes 58 % of the patients were diagnosed with PTSD and 27,5% with a depression disorder. These severity scores of pathological grief were an indication of a clinically significant level of PCBD/PGD. Background characteristics of the sample are presented in Table 1.

Procedure

This study was conducted at Foundation Centrum '45 in Diemen and Oegstgeest in the Netherlands. This clinic is specialized in treatments for patients who cope with complex psychological psychotrauma related problems due to persecution, war and violence. Clients were referred to the centre for trauma therapy in the period from October 2013 till May 2014. At this

clinic assessment took place at the start (36.5%) or halfway (63.5%) through the trauma therapy, with the Routine Outcome Monitoring (ROM) on the computer. The ROM consists of several self-reports and occurs once a year to measure the client's satisfaction and treatment progress. A part of the complete assessment, which was relevant for this study, is used for analysis.

Materials

Quality of life. The WHOQOL-BREF (WHOQOL Group, 1998) is a multidimensional self-report, which examines the subjective quality of life over the previous two weeks. The 26 items are measured on a 5-point Likert scale and divided in 4 domains. The Cronbach's α in this study for the different domains was .84 for physical health, .85 for psychological, .64 for social relationships, .85 for environment and .74 for the overall quality of life and general health. According to George and Mallery (2003) this is 'questionable' for the social relationship scale and 'acceptable' to 'good' for the other scales.

General psychiatric distress. The BSI-53 (Derogatis & Melisaratos, 1983) is a self-report which measures general psychiatric distress. Clients answered each item using a 5-point Likert scale to indicate the amount of distress in the previous seven days. The BSI-53 consists of nine scales: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, anger/hostility, phobic anxiety, paranoid ideation and psychoticism. In addition, the BSI-53 provides an overall composite score, the Global Severity Index (GSI), which is used in this study to reflect general distress. There was no access to the items scores, so it was not possible to carry out a reliability analysis. However, in previous studies Cronbach's α was between .70 and .85 (Derogatis & Melisaratos, 1983; Broday & Mason, 1991), which is 'acceptable to good' according to George and Mallery (2003).

Pathological grief. The TGI-SR (Boelen et al., 2014) is an 18-item self-report

questionnaire of disturbed grief, including symptoms of PCBD and PGD. Participants rate the occurrence of symptoms in the preceding month on a 5-point Likert scale. Items are summed to form an overall severity score. A summed score of ≥ 36 , including scores of ≥ 3 on the items 3 and 13, is an indicator of a clinically significant level of PCBD/PGD. Cronbach's α of the TGI-SR in this study was .96, which is 'excellent' according to George and Mallery (2003).

Traumatic stress. The HTQ-16 (Mollica, et al., 1992) was used to assess PTSD. The 16-item scale asked participants to rate how much particular symptoms have bothered them in the past week using a 4-point frequency scale. A mean item score > 2.5 was evaluated as a clinically meaningful score. The Cronbach's α of the HTQ-16 in this study was .94, which is 'excellent' according to George and Mallery (2003).

Statistical analysis

To examine the factor structure, a principal component analysis (PCA, oblimin rotation) was done, using the Statistical Package for the Social Sciences (SPSS, version 20.0). Initially, eigenvalues ≥ 1 were retained, because these values represent a substantial amount of variation (Kaiser, 1960). Kaiser's criterion provides a reliable standard for factor selection, with a sample of more than 200 participants (Stevens, 2002). The scree plot inflexions were used to determine the number of components. Item loadings ($\geq .4$) on the pattern matrix were interpreted (Graham, Guthrie, & Thompson, 2003). Pearson's correlation was used to explore the linear associations between the WHOQOL-BREF, the BSI-53 and HTQ-16 compared to the TGI-SR. Finally post hoc comparisons (Tukey HSD) examined if refugees and asylum seekers scored higher on the TGI-SR compared to the other groups in the sample.

Results

Content Validity

PCA with an oblique (direct oblimin) rotation (varimax) was carried out on the TGI-SR. For the data set the Kaiser-Meyer-Olkin (KMO) value .96 falls into the range of being ‘superb’, which means that the sample size is adequate for factor analysis (Field, 2009). Barlett’s test of sphericity $\chi^2(153) = 4044.94, p < .001$, verified that the correlation between items were sufficiently large for PCA. Analysis resulted in the emergence of a two-factor structure. Two components had eigenvalues over Kaiser’s criterion of 1 and accounted for 63.4% of the total variance (TV) of the TGI-SR. Although, the occurrence of the two-factor model was questionable, because the scree plot showed one inflexion, which would justify retaining only one factor (Cattell, 1966). Next to that, the first factor added 57.4% to the (TV) and the second factor accounted only for 6% to the (TV) of the TGI-SR. However, the main argument to conclude a two-factor structure gave the pattern matrix, which clearly showed two different factors with a strong positive correlation ($r = .700$). Table 2 shows the factor loadings after rotation in the pattern matrix. Loadings above .4 were seen as additional to the factor (Field, 2009).

By observing the item loadings on the two factors in this study, it seems that the first factor reflects the painful experiences after the loss. Prominent items were ‘feeling shocked and stunned’, ‘difficulty accepting the death’, ‘persistent longing for the deceased’, ‘intense sorrow and emotional pain’, ‘intrusive thoughts and images’. The second factor consists of a set of symptoms that conveyed a notion of a negative relation to the self and towards others. Prominent items were ‘confusion about one’s role in life’, ‘difficulty trusting other individuals’, ‘negative thoughts about oneself’. The items with the highest loadings (above .8) were ‘intrusive thoughts

and images', 'intense sorrow and emotional pain', 'persistent longing for the deceased', 'difficulty accepting the death', 'feelings shocked and stunned and negative thoughts about oneself'. Among the items with lowest loadings (under .6) were 'avoidance of reminders of the loss', 'preoccupation with circumstances of the death' and 'a desire to die in order to be with the deceased'.

Within the factor structure the items moderately inter-correlated, except from the items: 'difficulty or reluctance to pursue interests', 'experiencing emotional numbness' and 'disturbance in areas of functioning'. Those items were loading equally on both factors, and demonstrate the inability to discriminate between the two factors. An additional PCA was run, to test if the three items would load on a one-factor structure. All the items had a factor loading above .8, which means they add substantial to the construct of pathological grief and can't be erased out of the questionnaire (Field, 2009).

Construct Validity

Pearson correlation revealed that the mean item score on the BSI-53 significantly and positively related to the mean item score on the TGI-SR ($r = .58, p < .01$). A higher mean score on the BSI-53 predicted a higher mean score on the TGI-SR. The mean item scores on the HTQ-16 positively correlated with the mean item score on the TGI-SR ($r = .55, p < .01$). In addition, each mean item score of the WHOQOL-BREF in all of the 6 domains significantly correlated negatively with the TGI-SR mean item score; physical health ($r = -.46, p < .01$), social relationships ($r = -.33, p < .01$), environment ($r = -.42, p < .01$), psychological ($r = -.42, p < .01$), and the overall general quality of health ($r = -.38, p < .01$). A higher mean score on the WHOQOL-BREF predicted a lower mean score on the TGI-SR. These results indicate that the

TGI-SR is significantly related with general distress, anxiety and the quality of life, thereby providing evidence for its construct validity.

Mean Scores on the TGI-SR

In order not to bias the overall mean, participants were excluded from the analysis if 10% (2 items or more) of the total TGI-SR items were missing. In total 16 TGI-SR's were excluded and 348 were analysed. A one-way analysis revealed that the TGI-SR mean item score differed per group as follows; public service employees ($M = 2.36, SD = .82$), the first generation of victims from WWII ($M = 2.51, SD = .92$), the second generation of victims from WWII ($M = 2.32, SD = .83$), veterans, ($M = 2.43, SD = .94$), migrants and asylum seekers ($M = 3.26, SD = .95$) and people traumatised by other events ($M = 2.28, SD = .83$). The assumption of homogeneity of variances was tested and was found tenable using Levene's Test $F(5, 342) = .71, p = .62$. A one-way ANOVA revealed there was a significant effect of the mean TGI-SR total score for the different groups $F(5, 342) = 14.77, p < .05, \omega^2 = .17$. The actual difference in the mean scores between groups was 'between small and medium' based on Cohen's (1988) convention for interpreting effect size. Post hoc comparisons to evaluate pairwise differences among the group means were conducted with a Tukey HSD test. The test revealed significant pairwise differences between the mean scores of refugees and asylum with all the other groups within the sample: veterans ($p < .05$), first generation survivors of WWII ($p < .05$), second generation survivors WWII ($p < .05$), public service employees ($p < .05$) and people traumatised by other events ($p < .05$), which are presented in Figure 1. The higher rates of the occurrence of pathological grief among refugees and asylum seekers, confirms that the TGI is able to differentiate between subgroups and attest to the reliability of the TGI-SR.

Discussion

The aim of this study was to determine whether the TGI-SR is a reliable and valid diagnostic instrument that can be used for measuring pathological grief. The internal consistency of the TGI-SR was found to be high, attesting to its reliability. Inconsistent with the prediction, PCA resulted in the emergence of two factors, which correlated strongly. Consistent with what was expected, the TGI-SR was moderately positively related with the BSI-53 and the HTQ-16, and moderately negatively correlated with all the domains from the WHOQOL-BREF, which adds to its construct validity. In accordance with the last expectation, refugees and asylum seekers scored significantly higher on the TGI-SR as compared to the other subgroups within the sample.

The finding of a two-factor structure is in agreement with Holland and Neimeyer (2011), Prigerson and colleagues (1999) and the structure in the DSM-5 (APA, 2013). However by studying the individual items within the factors structure, the items from the TGI-SR were not loading on the factors *separation distress* and the *traumatic distress* (Prigerson & Jacobs, 2001; Holland & Neimeyer, 2011). Hence, the individual items sometimes switched between the two factors *reactive distress to the death* and *social/identity disruption* from the DSM-5. Combined together, these findings provide support for a two-factor structure, although the factors from Prigerson and colleagues, Holland and Neimeyer and the DSM-5 may not be the best fit for the symptoms from the TGI-SR.

By observing the item loadings on the two factors more closely, it seems that the first most substantial factor reflects the painful experiences after the loss, while the second factor consist of a set of symptoms that conveyed a notion of a negative relation to the self and towards others. These results were comparable to the finding that painful experiences after loss are the

major problem in pathological grief. Shear and Mulhare (2008) describe that bereaved individuals are captured in a repeating cycle of intense yearning, longing, sadness, bitterness and frustration. Mourners fail to regain new interest in life and grief tends to be chronic. Berntsen (2001) and Bower and Sivers (1998) argue that this is due to the fact that the information about the loss is insufficiently integrated in the autobiographic memory. Because of this lack of connection, memories, feelings and thoughts can be easily retrieved with reminders that are linked with the loss in the associative network. This process explains why patients with pathological grief have continuously experiences of intrusive thoughts, feelings of shock, intense feelings of pain, anger and sadness.

The second factor reveals a negative relation towards the self and others. This finding can be associated with another critical aspect of pathological grief; bereavement could shatter expectations about life, the self and others (Gluhoski, 1995; Neimeyer, Prigerson, & Davies, 2002; Boelen, et al., 2003). Losing a loved one may disrupt basic assumptions that life is fair and meaningful. Problems arise when the bereaved fails to transform negative assumptions into positive interpretations and this is assumed to have a key role in driving the disorder (Prigerson, 1999). The item 'avoidance of reminders of the loss' seems less compatible and loads less substantial on the factor. A possible explanation is that avoidance appears not to be unique for pathological grief. Avoidance strategies frequently take place in the acute phase after the death of a significant other and are therefore more a symptom of normal grief (Bonanno et al., 2007).

Another finding that emerged from the factor analysis was that three items were loading equally on both factors, and demonstrated the inability to discriminate between the two factors. These symptoms 'difficulty or reluctance to pursue interests', 'experiencing emotional numbness', 'disturbance in areas of functioning' may represent more general symptoms, which

don't add specifically to the concept of grief. For example, the item 'difficulty or reluctance to pursue interest' seems similar to the item 'a diminished interest in almost all activities', which is a symptom of a depressive episode (APA, 2013). 'Experiencing emotional numbness' is as well a symptom of PTSD in the avoidance cluster (APA, 2013). To diagnose in general a disorder the DSM-5 states that symptoms should cause a marked dysfunction in social occupational or other important life domains, which is comparable with the item 'disturbance in areas of functioning' (APA, 2013). Taken together, it seems that those three items are relevant to obtain in the questionnaire because they add in general to the construct of pathological grief, but the items may not be specific symptoms for pathological grief.

The moderate correlation between the TGI-SR and the BSI-53, confirms prior work were pathological grief, depression, and anxiety were related but separable syndromes (Chen et al., 1999; Prigerson et al., 1996). Distinguishing symptoms for depression and pathological grief are for example, that sadness is often mixed with positive reminders of the deceased in a grief process, whereas a depressed individual is constantly negative. In addition the self-esteem from bereaved individuals is mostly preserved, but feelings of worthlessness and a lack of self-esteem are common for depressed patients (APA, 2013). The moderate relation with the HTQ-16 is in accordance with previous findings, which showed that there is a substantial overlap and interplay of symptoms between pathological grief and PTSD (Raphael, 1997; Raphael & Martinek, 1997; Stroebe et al., 2001). The moderate relation can be explained by that PTSD and pathological grief differ phenomenology. The distress of pathological grief is related to the loss of the bond from the deceased, whereas the distress of PTSD symptoms is connected to the impact of the actual threatening event. Additionally, anxiety is less frequently present among bereaved individuals compared to trauma survivors. Sadness and yearning play a more important role for

grieving individuals than for those who have been traumatized (Stroebe et al., 2001). The finding that a higher score on the TGI-SR predicted a lower score on the WHOQOL-BREF, is in line with a study from Prigerson and colleagues (2009), who reported that pathological grief is associated with defects at work, social functioning and physical health. The patients who reported heightened grief symptoms, displayed more negative outcomes generally associated with emotional suffering, including lower subjective quality of life and moderate functional impairment. Altogether, these findings confirm that pathological grief is associated with symptoms of general distress, PTSD and the quality of life. The moderate correlations indicate that the syndromes are related but distinguishable, which attest to the construct validity of the TGI-SR.

Refugees and asylum seekers produced the highest mean scores on the TGI-SR. This is in accordance with previous studies, which reported higher prevalence rates of pathological grief amongst refugees (Craig, et al., 2008). Perilla, Norris & Lavizzo (2002) assert that the decreased distress among ethnic/racial minority individuals can be due to the exposure to past/present stress and increase vulnerability (socioeconomic status, racism, acculturative distress, prior traumas or losses). The higher occurrence of pathological grief among refugees and asylum seekers, confirms that the TGI is able to differentiate between subgroups within the sample and attest to the reliability of the TGI-SR.

Strengths and limitations.

With regard to strengths, this research consists of a large sample size ($n = 364$). The subject-to-item ratio of the TGI-SR in the PCA was 20:1, which is far above the recommendation that there should be at least 10 observations for each independent variable (Moons, Royston, Vergouwe, Grobbee, & Altman, 2009). The current sample consists of patients with a wide range

of age, different types of losses and with various types of cultural backgrounds. This heterogeneous sample size makes results more applicable to generalize to patient populations.

The following limitations should be taken into account with the interpretation of the results. First, this study used a PCA to observe the conceptualization of pathological grief. PCA is mathematically different from common factors and officially not a type of factor analysis. PCA is used to reduce symptoms into a small number of subsets, while factor analysis is used to identify the structure underlying the symptoms and to estimate scores to measure latent factors themselves (Field, 2009). Second, the design of the research does not allow examining the stability of the factor structure over time. Third, the test is assessed as a self-report on the computer. Many of the patients were not native Dutch speakers. All the measures were completed in Dutch, without an interpreter. Therefore it should be taken into account that the questions might not be not well understood. Finally, the TGI-SR scores revealed that 72.2% of all the participants had an indication for pathological grief. Therefore it should be noted that individuals with lower levels of grief or no grief symptoms were probably underrepresented. This so-called ‘restriction of range’ phenomenon could have influenced the results by underestimating the correlations and the internal consistency. Thus, the generalizability to a general population should occur cautiously.

Future research and clinical implications.

The findings of this study should be seen as preliminary evidence for a two-factor structure of the TGI-SR and replication is required in future research across different samples. A recommendation would be to use an exploratory factor analysis (EFA) and additionally a confirmatory factor analysis (CFA), to examine the factor structure with a data-driven and a model-driven approach. To determine if the two-factor structure is stable, it is necessary that

future research will explore the content validity of the TGI-SR across time with a repeated-measure design.

The two underlying mechanisms may be useful for application in grief treatment. The prominent symptoms of pathological grief refer to the painful experiences after the loss. Worden (2001) describes that the most important target for bereaved individuals is to accept the loss by acknowledging that the loss is irrevocable and the loved one is forever absent. This process facilitates the integration of the loss in the autobiographical memory and eventually decreases the disruptive, pangs of grief and despair, which seem to be the core problem of pathological grief. Exposure techniques (imaginal and in vivo) can be used in admitting the permanence of the separation (Boelen, van den Hout & van den Bout, 2006). The second factor reflects negative thoughts towards the self and others. The Socratic dialogue, and a behavioral assignment can serve as a manner to identify unrealistic assumptions and thinking errors. Clinicians can focus in grief therapy on reformulating negative assumptions into more useful interpretations about oneself and towards others (Boelen et al., 2006).

Conclusion

This study gave a conceptualization of the construct pathological grief. The results showed that the TGI-SR is a reliable instrument for measuring pathological grief. The TGI-SR showed moderate correlations with the BSI-53, WHOQOL-BREF and the HTQ-16, thereby providing evidence for its construct validity. Regarding the content validity, this study revealed that pathological grief consists of two factors. All the items of the TGI-SR add to the construct of pathological grief, which makes the TGI-SR a valid instrument. However the items were not loading on the factors as predicted and further research is required to test the content validity with a data-driven and a model-driven approach.

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Table 1

Demographic characteristics of the sample

Group	<i>N</i>	<i>Mean</i>	Man	Woman	PCBD/PGD
Veterans	56	46.2	54	10	66.7%
Refugees/asylum seekers	107	44.0	73	34	61.1%
1 st generation WWII	19	71.2	5	14	65.6%
2 nd generation WW-II	126	54.5	48	78	61.8%
Public service employees	46	49.2	36	10	90.9%
Traumatized by other events	9	55.4	4	5	66.7%
Total	364	50.3	220	144	72.1%

Note. A summed score of ≥ 36 on the TGI-SR, including scores of ≥ 3 on items 3 and 13, is an indicator of a clinically significant level of PCBD/PGD.

Table 2

Factor loadings on the pattern matrix (PCA, oblimin rotation)

TGI-SR items	Factor	
	1	2
Intrusive thoughts and images	.83	
Intense sorrow and emotional pain	.89	
Persistent longing for the deceased	.95	
Confusion about one's role in life		.70
Difficulty accepting the death	.86	
Avoidance of reminders of the loss)		.50
Difficulty trusting other individuals		.75
Bitterness or anger related to the los	.73	
Difficulty or reluctance to pursue interests	.44	.45
Experiencing emotional numbness	.44	.43
Feeling that life is meaningless or empty	.75	
Feeling shocked and stunned	.80	
Disturbance in areas of functioning	.50	.41
Preoccupation with the circumstances of the death	.56	
Difficulty with positive reminiscing about the		.62

deceased

Negative thoughts about oneself **.84**

A desire to die in order to be with the deceased **.51**

Feeling alone or detached from other individuals **.74**

Note. Factor loadings > .4 are presented. Factor loadings of items belonging to each of the two components are shown in boldface.

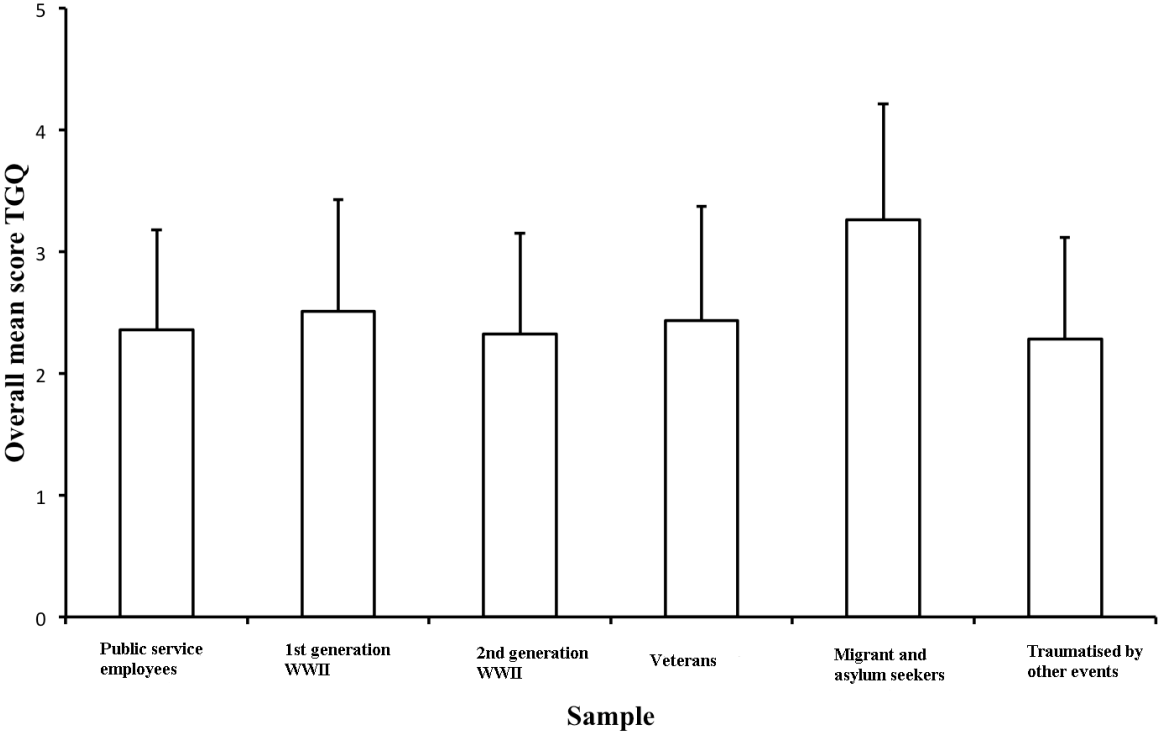


Figure 1. Mean and SD of the item score on the TGI-SR for the different groups within the sample. All groups differ significant from the refugees and asylum seekers at the $p < .05$, two-tailed.