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RELIABILITY AND VALIDITY OF THE DUTCH VERSION OF THE INVENTORY OF TRAUMATIC GRIEF (ITG)

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The psychometric properties of the Dutch version of the Inventory of Traumatic Grief (ITG) were investigated in two studies with bereaved adults who had suffered the loss of a first-degree relative. In Study 1, exploratory factor analysis indicated that the items of the ITG clustered together into one underlying factor. In addition, the internal consistency of the ITG and its short-term temporal stability were found to be high. In Study 2 it was found that the ITG exhibited adequate discriminative, concurrent, and construct validity. Furthermore, an ITG cutoff score for a diagnosis of traumatic grief was determined, with a sensitivity of 86% and a specificity of 76%, providing evidence in favor of the predictive validity of the ITG.

Over the last few decades, different self-report questionnaires for the assessment of grief symptomatology have been developed (for an overview, see Hansson, Carpenter, & Fairchild, 1993; Neimeyer & Hogan,

2001). Faschingbauer, Zisook, and DeVaul (1987) developed the Texas Revised Inventory of Grief (TRIG). Although the TRIG is one of the most commonly used instruments to measure grief symptoms, it has been criticized in a number of ways. Prigerson, Maciejewski, et al. (1995) noted that the TRIG includes item redundancies and that it is overinclusive of benign symptoms of grief, while omitting the more threatening symptoms of grief. Sanders, Mauger, and Strong (1985) constructed the Grief Experience Inventory (GEI), a multidimensional instrument to measure grief reactions across nine dimensions (e.g., despair, guilt, social isolation, loss of control). Although there is some evidence of the questionnaires' convergent and discriminant validity, other aspects of the validity as well as the reliability of the GEI have been found to be poor. In addition, the GEI has been criticized for including item redundancies, for containing superfluous items and for lacking responses most relevant to grief (Neimeyer & Hogan, 2001). Burnett, Middleton, Raphael, and Martinek (1997) developed the 17-item Core Bereavement Items scale, in an effort to construct a coherent scale of core bereavement symptoms common to different groups of bereaved individuals. While the CBI has been found to possess adequate internal consistency and discriminant validity, other aspects of the validity as well as the stability of the measure still remain to be investigated. As noted by Neimeyer and Hogan, at present, it seems that the CBI is probably best suited to measure "normal" grief reactions, given that it intentionally excludes less frequent grief symptoms reflecting a problematic grief course. Recently, Hogan, Greenfield, and Schmidt (2001) developed the Hogan Grief Reaction Checklist (HGRC) that was designed to measure the multidimensional nature of the normal process of bereavement. A strength of the measure is that it was constructed using empirical methods of instrument development with items being derived from qualitative data collected from bereaved individuals, as opposed to other grief scales that were rationally developed based on reviews of the bereavement literature and clinical experience of the scale's authors (Hogan et al., 2001). In addition, the HGRC measures phenomena that are not by definition specific to bereavement, such as panic behavior, detachment and cognitive disorganization, which makes it suitable for comparing bereaved and non-bereaved individuals on different dimensions.

Besides these four well-known instruments, other questionnaires that have been developed and studied with bereaved populations include the

Impact of Event Scale (Horowitz, Wilner, & Alvarez, 1979; Zilberg, Weiss, & Horowitz, 1982), the Widowhood Questionnaire (Zisook & Shuchter, 1985), the Grief Measurement Scale (Jacobs et al. 1986), and the Grief Resolution Index (Remondet & Hansson, 1987).

Although there have been many attempts to quantify the intensity of grieving, relatively little attention has been paid to the development of questionnaires that can be specifically used to measure pathological or maladaptive symptoms of grief. This is probably partially due to the fact that—although throughout the years different authors have suggested criteria for pathological forms of grief (Jacobs, 1993; Parkes & Weiss, 1983)—up to five years ago, there were few empirical studies on the distinction between normal and pathological symptoms of grief. However, this has changed; different studies have helped to identify certain maladaptive symptoms of grief that form a unified component of emotional distress that is clearly distinguishable from symptoms of depression and anxiety, and which pose significant risks for mental and physical morbidity (for an overview, see Jacobs, 1999; Prigerson & Jacobs, 2001). On the basis of empirical studies and an expert conference, standardized consensus criteria for the disorder traumatic grief have been developed, which have received preliminary validation in a sample of 308 elderly widowed spouses (Prigerson et al., 1999). The symptoms of traumatic grief have been conceptualized as falling into two categories: "separation distress" (e.g., preoccupation, yearning and searching to the point of functional impairment) and "traumatic distress" (e.g., numbness, emotional detachment, bitterness, lack of trust in others, identification symptoms).

Now that maladaptive symptoms of grief have been more clearly identified, there is a growing need for an instrument that can be used to measure these symptoms. The Inventory of Traumatic Grief (ITG), developed by Prigerson and Jacobs (2001), was constructed for this purpose. In contrast with some of the other extant grief questionnaires that measure grief reactions in general, the ITG was specifically designed to measure symptoms of grief that are expected to be particularly maladaptive. The ITG is an expanded version of the Inventory of Complicated Grief (ICG; Prigerson, Maciejewski, et al., 1995). It contains the symptoms that are present in the consensus criteria for traumatic grief as well as other maladaptive symptoms of grief. Although some psychometric properties of the ICG are known, little is known about the psychometric properties of the ITG. Prigerson and Jacobs (2001) have

reported that the ITG possessed high internal consistency in a study with 76 widowed participants. However, no data have been published on the temporal stability and factor structure of the scale. In addition, no studies have yet evaluated the validity of the ITG. Consequently, it is unknown if the scale measures "maladaptive" rather than "normal" symptoms of grief.

The purpose of the present research was to examine the psychometric properties of the Dutch version of the ITG in two studies, with different groups of bereaved adults who had suffered the loss of a first-degree relative (partner, parent, child, or sibling) and who had sought some form of professional help or treatment in the aftermath of their loss. In Study 1, the factor structure, internal consistency, and short-term temporal stability of the ITG were examined. In Study 2 the discriminative, concurrent, and construct validity of the ITG were explored. Different predictions were tested derived from the notion that the ITG was designed to measure "maladaptive" instead of "normal" reactions to loss. In addition, by comparing scores on the ITG with the outcome of a structured clinical interview, the Traumatic Grief Evaluation of Response to Loss (TRGR2L; Prigerson, Kasl, & Jacobs, 1998), a cutoff score for the ITG was determined that optimally classifies participants as suffering or not suffering from the disorder traumatic grief, according to the consensus criteria of Prigerson et al. (1999). The aim of this was to test the predictive validity issue of whether the ITG can be used to identify individuals with clinical levels of traumatic grief as defined by Prigerson et al. (1999).

Study 1: Examination of the Factor Structure, Internal Consistency, and Temporal Stability of the ITG

Method

Participants

Data were obtained from 250 bereaved individuals who had suffered the death of a first-degree relative in the previous three years. Table 1 shows the characteristics of the group. All participants had received some form of help or treatment after their loss: 33 (13%) had followed treatment with a psychologist, 22 (9%) had received help from a social worker, 95 (38%) from a grief counselor, 18 (7%) from clergy, and 82 (33%) had

TABLE 1 Characteristics of the Sample

	Study 1		Study 2	
Characteristic	Dimensionality ($n = 250$)	Stability ($n = 29$)	Validity ($n = 89$)	Cutoff point ($n = 55$)
Gender				
Female (%)	206 (82.4)	26 (89.7)	67 (75.3)	41 (74.5)
Male (%)	44 (17.6)	3 (10.3)	22 (24.7)	14 (25.5)
Mean age (*SD*)	49.5 (11.6)	47.8 (10.0)	39.6 (12.3)	39.5 (13.1)
Educational level[a]				
Low (%)	53 (21.2)	5 (17.2)	16 (18)	11 (20.0)
Medium (%)	128 (51.2)	17 (58.6)	38 (42.7)	25 (45.5)
High (%)	69 (27.6)	7 (24.1)	33 (37.1)	19 (34.5)
Relationship to deceased				
Partner (%)	174 (69.6)	16 (55.2)	25 (28.1)	15 (27.3)
Parent (%)	35 (14.0)	8 (27.6)	23 (25.8)	14 (25.5)
Adult child (%)	32 (12.8)	3 (10.3)	32 (36.0)	22 (40.0)
Sibling (%)	9 (3.6)	2 (6.9)	9 (10.1)	4 (7.3)
Cause of death				
Unnatural (%)	52 (20.8)	9 (31.0)	20 (22.5)	17 (30.9)
Natural (%)	198 (79.2)	20 (69.0)	64 (71.9)	36 (65.5)
Mean time since loss (in months): (*SD*)	17.0 (8.5)	18.0 (10.0)	41.6 (47.4)	38.0 (41.1)

[a]Medium educational level refers to high school and/or intermediate vocational qualification, high educational level refers to a college or university degree.

received help from different caretakers. For the estimation of the temporal stability of the ITG, 29 participants of the total group completed the ITG twice. Characteristics of this subsample are also shown in Table 1. With respect to the help these participants had received, the distribution was as follows: psychologist, 10%; social worker, 7%; grief counselor, 41%; clergy, 10%; more than one caretaker, 31%.

Measures

Assessment of Background and Loss Characteristics. Questions were developed to assess background characteristics (e.g., age, gender), and characteristics of the loss experience (e.g., mode of death, time from loss).

ITG. The ITG (Prigerson & Jacobs, 2001) is a 30-item self-report questionnaire designed to measure maladaptive symptoms of grief.

Respondents are asked to rate the degree to which the symptoms represented in the items applied to them in the last month on 5-point scales, which for some items represent the frequency with which the symptoms occurred (ranging from *almost never* to *always*) and for other items represent the intensity of the symptoms (e.g., ranging from *no sense of bitterness* to *an overwhelming sense of bitterness*). The total score is calculated by summation of the item scores and gives an indication of the maladaptive grief symptom severity. The original version of the ITG was translated into Dutch and subsequently translated back into English by an interpreter, to make sure that the Dutch translation resembled the original version as much as possible. Because the Dutch version was based on a preliminary version of the ITG, which was obtained from H. G. Prigerson in 1997, the Dutch version differs slightly from the version in Prigerson and Jacobs (2001). In the Dutch version, Item 26 ("I have lost my sense of security or safety since the death of—") and Item 27 ("I have lost my sense of control since the death of—") of the original version, were taken together into one item ("I have lost my sense of security, safety or control"). Consequently, the ITG examined in the present research consists of 29 items (see Table 2), with the possible total score ranging from 29 to 145.

Procedure

Data for the present study were collected as part of a Dutch research program on coping with bereavement. To collect data for this program, 98 people who frequently had contact with bereaved individuals through their work or voluntary activities were found willing to approach bereaved individuals, with the request to participate in a survey study on bereavement, and to hand out research envelopes to those who agreed to do so. Among them were social workers, grief counselors, psychologists, clergy, contact persons from mutual support groups, and people who organized meeting days for bereaved people. The research envelopes handed out to the bereaved included an information letter, an informed consent form, questionnaires for the present study, and questionnaires for the other studies of the research program. The information letter asked participants to fill in the questionnaires and return these to the researchers in an enclosed self-addressed stamped envelope. In total, 1,128 research-envelopes were handed out to bereaved individuals and 492 individuals (44%) returned the questionnaires.

TABLE 2 Item-Factor Loadings, Item-Total Correlations, and Test—Retest Correlations of the ITG Items

Item	Item factor-loadings[a]	Item total correlations	Test—retest correlations
1. The death of—feels overwhelming or devastating.	.71	.67	.55
2. I think about—so much that it can be hard for me to do the things I normally do.	.72	.70	.70
3. Memories of—upset me.	.57	.54	.73
4. I feel I have trouble accepting the death.	.43	.38	.41
5. I feel myself longing and yearning for—.	.61	.50	.64
6. I feel drawn to places and things associated with—.	.50	.46	.73
7. I can't help feeling angry about—'s death.	.62	.57	.83
8. I feel disbelief over—'s death.	.66	.62	.79
9. I feel stunned, dazed or shocked over—'s death.	.82	.77	.72
10. Ever since—died it is hard for me to trust people.	.61	.54	.68
11. Ever since—died I feel I have lost the ability to care about other people or I feel distant from people I care about.	.54	.49	.82
12. I have pain in the same area of my body, some of the same symptoms, or have assumed some of the behaviors or characteristics of—.	.42	.38	.48
13. I go out of my way to avoid reminders that—is gone.	.25	.24	.48
14. I feel that life is empty or meaningless without—.	.79	.69	.72
15. I hear the voice of—speak to me.	.42	.37	.86
16. I see—stand before me.	.37	.33	.53
17. I feel like I have become numb since the death of—.	.78	.73	.81
18. I feel that it is unfair that I should live when—died.	.70	.60	.78
19. I am bitter over—'s death.	.72	.67	.76

(*Continued*)

TABLE 2   *(Continued)*

Item	Item factor-loadings[a]	Item total correlations	Test–retest correlations
20. I feel envious of others who have not lost someone close.	.45	.39	.83
21. I feel like the future holds no meaning or purpose without—.	.85	.75	.86
22. I feel lonely ever since—died.	.75	.66	.67
23. I feel unable to imagine life being fulfilling without—.	.85	.75	.83
24. I feel that a part of myself died along with the deceased.	.68	.61	.69
25. I feel that the death has changed my view of the world.	.80	.74	.82
26. I have lost my sense of security, safety, or control since the death of—.	.72	.66	.64
27. I believe that my grief has resulted in significant impairment in my social, occupational or other areas of functioning.	.68	.62	.72
28. I have felt on edge, jumpy, or easily startled since the death.	.70	.63	.51
29. Since the death of—, my sleep has been bad.	.61	.55	.91

[a] Factor-loadings in the one-factor solution.

For the present study we selected respondents who were between 18 and 70 years of age, who had been confronted with the death of a first-degree relative in the previous three years, and who had received help in the aftermath of their loss. In total, 250 individuals met these criteria. Twenty-nine randomly selected participants filled in the ITG a second time shortly after the questionnaire packet had been filled in. The test–retest interval ranged from 9 to 28 days ($M = 16.62$, $SD = 5.28$).

Results

Descriptive Statistics

The mean ITG score of the total group ($N = 250$) was 82.52 ($SD = 20.14$). The mean scores of men ($M = 81.57$, $SD = 19.87$) and

women ($M = 82.73$, $SD = 20.23$) did not differ significantly. There was a small but significant correlation between the age of the participants and the ITG ($r = 0.17$, $p < .01$). Educational level had a significant effect on ITG scores, $F(2, 246) = 9.37$, $p < .001$. Post hoc tests (Tukey *a*, $p < .05$) revealed that participants with the lowest educational level had higher ITG scores than participants with a medium or high level of education. The form of help participants had received, kinship to the deceased, and time from loss had no influence on the ITG scores.

The mean ITG score of the subsample included in the test–retest analysis ($n = 29$) was 86.25 ($SD = 20.3$). Scores of men ($M = 80.33$, $SD = 39.63$) and women ($M = 86.88$, $SD = 18.20$) did not differ significantly. The participants' age, educational level, form of help, kinship, and time from loss had no influence on the ITG scores.

Factor Structure of the ITG

There is some discussion in the literature whether common factor analysis is an appropriate method to evaluate the dimensionality of a questionnaire, when the items are rated on 5-point scales (cf. Dolan, 1994). To avoid this discussion, we used *Mplus* (Muthén & Muthén, 1998) to explore the factor structure underlying the ITG. In Mplus, factor analysis is based on the matrix of polychoric correlations. The latter accounts for the fact that the items are rated on 5-point scales and do not have a continuous response format as is assumed in common factor analysis.

The factor analyses resulted in the emergence of 5 factors with eigenvalues greater than 1.00 (i.e., 12.39, 2.11, 1.60, 1.28, and 1.08). However, there were reasons to conclude that the ITG items are best characterized as one factor. First of all, the first factor explained 43% of the variance with the second through fifth factor adding only 4%–7% to the variance explained by the first factor. Secondly, inherent to that, the screeplot showed a break between the steep slope of the first factor and a gradual trailing of the remaining factors, which provided further evidence in support of a single underlying factor. Thirdly, as can be seen from the factor loadings presented in Table 2, in the one factor solution, all items (with the exception of two) had factor loadings of .40 or greater. The two items with factor loadings less than .40 were not removed because their content represents aspects of maladaptive grief that are considered theoretically important. Finally, and most importantly, when the results of

(rotated) models with more than one factor were examined most items were found to load on more than one factor, and the factors emerging in these models could not be interpreted in a meaningful way. Overall, the findings suggested that, within the present dataset, the ITG items clustered together into one underlying factor, one intended to measure maladaptive grief.

Internal Consistency and Item-Total Correlations

The internal consistency of the ITG was high (Cronbach's $\alpha = .94$), attesting to the reliability of the questionnaire. Cronbach's α did not increase with the deletion of a single item. In line with the results of the factor analysis, which revealed that all items clustered together into one underlying factor, the item-total correlations (see Table 2) were all positive and ranged from .24 (Item 13) to .77 (Item 9). Twenty items had item-total correlations greater than .50.

Temporal Stability

The temporal stability of the ITG was examined with the subgroup of 29 participants who filled in the ITG twice. The test–retest correlations for the individual items of the ITG (see Table 2) ranged from .41 (Item 4) to .91 (Item 29). The test-retest correlation for the ITG total score was .92, attesting to the temporal stability of the ITG.

Study 2: Examination of the Validity of the ITG and Determination of an ITG Cutoff Score for a Diagnosis of Traumatic Grief

Method

Participants

Data for the estimation of the discriminative, concurrent, and construct validity of the ITG were derived from 89 bereaved outpatients who had suffered the loss of a first-degree relative. For the determination of a cutoff score for a diagnosis of traumatic grief, a subsample of 55 participants was interviewed with the Traumatic Grief Evaluation of Response to Loss (TRGR2L; Prigerson et al., 1998). Background and loss characteristics of both samples are presented in Table 1.

Measures

All participants filled in the Dutch version of the ITG, as described in Study 1 (Cronbach's α in this sample was .94). The concurrent and construct validity were estimated with another grief questionnaire, a measure of depression and a general psychopathology measure. The ITG cutoff score was determined with the TRGR2L.

Texas Revised Inventory of Grief (TRIG). The TRIG (Faschingbauer et al., 1987) is a commonly used measure of grief-symptomatology. It includes two subscales focusing on "past behavior" (8 items) and "present feelings" (13 items). In this study the second subscale, measuring current reactions to the loss, was used. This subscale consists of 13 declarative statements (e.g., "I cry when I think of the person who died"). Respondents are asked to indicate to what extent the statements presently apply to them on 5-point scales ranging from 1 (*completely false*) to 5 (*completely true*). Cronbach's α of the TRIG in this study was .88.

Beck Depression Inventory (BDI). The BDI (Beck, Rush, Shaw, & Emery, 1979; Dutch version by Bouman, Luteijn, Albersnagel, & Van der Ploeg, 1985) is a widely used questionnaire to assess depression. It contains 21 groups of four statements representing depressive symptoms, from which the respondent has to choose the most applicable. Cronbach's α of the BDI in this study was .83.

Symptom Checklist (SCL-90). The SCL-90 (Derogatis, 1983; Dutch version by Arrindell & Ettema, 1986) is a 90-item self-report symptom inventory designed to measure psychiatric symptomatology. Respondents have to indicate to what extent they experienced the symptoms represented in the items in the past week, on 5-point scales ranging from 1 (*never*) to 5 (*always*). The SCL-90 yields nine symptom dimensions (e.g., depression, anxiety, sleeping problems). The total score gives an indication of the general degree of psychopathology. In this study the Cronbach's αs of the subscales were good, ranging from .73 (Hostility subscale) to .90 (Anxiety subscale). Cronbach's α of the total scale was .97.

TRGR2L. The TRGR2L is a structured clinical interview developed by Prigerson et al. (1998) that can be used to determine whether or not someone suffers from traumatic grief, according to the consensus criteria of Prigerson et al. (1999). By asking structured questions, the interviewer

estimates if the respondent meets each of the five consensus criteria. At the end of the interview the interviewer gives a "yes" or "no" judgment with respect to whether the respondent suffers from traumatic grief. There is some evidence of the reliability and validity of the TRGR2L. In a study of 76 widowed participants, Prigerson and Jacobs (2001) found that the kappa between the rater's global assessment of the respondents' grief and the assessment with the TRGR2L was .71. Evidence for the criterion validity of the interview was found in a study by Silverman et al. (2000). They found that bereaved individuals meeting diagnostic criteria for traumatic grief as determined with the TRGR2L had greater quality of life impairments than those not meeting these criteria, controlling for age, gender, time from loss, and a diagnosis of depression and posttraumatic stress disorder.

Procedure

Psychotherapists from 11 institutions for ambulatory mental health care in the Netherlands cooperated in the present study. They were instructed to invite eligible patients to participate in the present study. Eligible patients were patients who had been confronted with the loss of a first-degree relative and who reported that they had bereavement-related emotional problems among the complaints they sought help for. We chose to include patients who were not necessarily all "maladaptive grievers" and who possibly had other complaints besides those related to their loss, to be able to test the predictive validity issue of whether the ITG can be used to identify individuals with clinical levels of traumatic grief. Patients were solicited during the intake. They were told that the study involved completing a questionnaire packet and participating in an interview. More than 90% of the patients solicited agreed to participate. Therapists handed out questionnaire packets to these patients, which included an information letter, an informed consent form, and the research questionnaires. Participants were asked to complete the questionnaires at home and to return these to the researchers in an enclosed self-addressed stamped envelope.

Immediately on receipt of their questionnaires, 59 randomly selected participants were contacted with the request to participate in an interview. Fifty-five participants (93%) agreed to participate. They were interviewed in their homes or at the institution where they were going to receive treatment using the TRGR2L. The interviews were conducted by Paul A. Boelen, Jan van den Bout, and Jos de Keijser and three

graduated clinical psychologists. The ITG scores were unknown to the interviewers before the interviews were taken to avoid prejudiced interpretation of the interview results.

Results

Descriptive Statistics

The mean ITG score of the total group $(N = 89)$ was 84.33 $(SD = 22.69)$. Scores of men $(M = 83.18, SD = 25.80)$ and women $(M = 84.70, SD = 21.77)$ did not differ significantly. The ITG correlated positively with the participants' age $(r = .25, p < .05)$. There was an effect for educational level, $F(2, 84) = 4.00, p < .05$, with participants with a high level of education having a lower mean ITG score than participants with a low or medium level of education. In addition, kinship to the deceased had a significant effect on ITG scores $,F(3, 85) = 3.70, p < .05$. Post hoc tests (Tukey $a, p < .05$) indicated that this effect could be attributed to bereaved children having a significantly lower mean ITG score than bereaved partners. The ITG did not correlate with time from loss.

The mean ITG score of the 55 participants who were interviewed was 87.78 $(SD = 21.46)$. Scores of men $(M = 86.79, SD = 21.67)$ and women $(M = 88.12, SD = 21.65)$ did not differ. The participants' age, educational level, kinship, and time from loss had no influence on ITG scores in this group.

Discriminative Validity

We examined the ability of the ITG to discriminate between individuals whose loved ones had died of different causes. Participants were divided into two groups consisting of those individuals whose loved ones died of "unnatural causes" $(n = 20)$ and those individuals whose loved ones died of "natural causes" $(n = 64$; there were missing values for 5 participants). Unnatural causes encompassed accident, suicide, or homicide; whereas natural causes referred to diseases and other medical causes (e.g., heart attack). On the basis of the empirically verified notion that losses due to unnatural causes lead to maladaptive grief reactions more often than natural losses (Jacobs, 1999; Jacobs, Mazure, & Prigerson, 2000), we expected the first group to have higher ITG scores than the second group. Consistent with this expectation, the mean ITG score of participants whose loved ones died of unnatural causes $(M = 95.60, SD = 18.75)$ was found to be significantly higher than the mean score of

those whose loved ones died of natural causes ($M = 82.22$, $SD = 23.17$), $t(82) = -2.35$, $p < .05$. An additional analysis of covariance revealed that group differences remained when the participants' age (that was found to be related to the ITG) was controlled, $F(1, 81) = 4.63$, $p < 05$.

Concurrent Validity

With respect to the concurrent validity, we expected that the ITG would be significantly correlated with each of the symptoms of psychopathology tapped by the BDI and the SCL-90, given that the ITG was designed to measure maladaptive grief symptoms that have been found to be positively associated with different forms of emotional distress (cf. Chen et al., 1999; Prigerson et al., 1997; Prigerson, Frank et al., 1995; Silverman et al., 2000). Correlations between the ITG and the psychopathology measures are shown in the first column of Table 3. As expected, the ITG was found to be significantly associated with each of the psychopathology measures (all ps $< .05$, one-tailed, Bonferroni adjusted), attesting to its concurrent validity.

Additionally, we expected to find a significant correlation between the ITG and the TRIG. We expected this correlation to be higher than the correlations between the ITG and the psychopathology measures, because the ITG and the TRIG were both developed to assess grief

TABLE 3 Correlations Between the ITG, the TRIG, the BDI and the SCL-90

Measure	ITG	TRIG	z^a
TRIG	.71*		
BDI	.59*	.32*	2.16†
SCL-anxiety	.58*	.39*	1.57
SCL-agoraphobia	.51*	.28	1.99†
SCL-depression	.65*	.38*	2.35††
SCL-somatic problems	.47*	.24	1.66†
SCL-insufficiency	.61*	.40*	1.18†
SCL-sensitivity	.49*	.30*	1.42
SCL-hostility	.29*	.23	0.40
SCL-sleeping problems	.47*	.35*	0.91
SCL-total score	.66*	.40*	2.20†

Note. ITG = Inventory of Traumatic Grief; TRIG = Texas Revised Inventory of Grief; BDI = Beck Depression Inventory; SCL = Symptom Checklist.

[a]z scores regarding differences between the correlations between the ITG and the psychopathology measures, and the correlation between the TRIG and these measures.

* $p < .05$, one-tailed (Bonferroni adjusted). † $p < .05$. †† $p < .01$.

symptoms, whereas the other measures were developed for the assessment of other forms of emotional distress. As predicted, the correlation between the ITG and the TRIG was high ($r = .71$, $p < .05$) and outranged each of the correlations between the ITG and the psychopathology measures.

Construct Validity

To examine the construct validity, we compared the correlations between the ITG and the psychopathology measures (BDI and SCL-90) with the correlations between the TRIG and these measures. Given that the ITG was developed to measure maladaptive symptoms of grief that would be expected to be highly associated with psychological impairment, whereas the TRIG was designed to measure the more benign symptoms of grief that would not be expected to be associated with morbidity to a high degree (Prigerson, Maciejewski, et al., 1995), we predicted that the ITG would be more highly associated with the psychopathology measures than the TRIG. Both sets of correlations, together with the z scores regarding the differences between the correlations, are presented in Table 3. It was found that the ITG was significantly more associated with the BDI, the SCL-90 total score, and most of the SCL-90 subscales than the TRIG, with the exception of the SCL-90 Anxiety, Sensitivity, Hostility, and Sleeping Problems subscales, which were equally associated with the TRIG.

Determination of a Cutoff Point

The determination of an ITG cutoff score for a diagnosis of traumatic grief was based on the data of the 55 participants who were interviewed with the TRGR2L. It was found that 22 of these participants did and 33 did not meet the consensus criteria for traumatic grief as described by Prigerson et al. (1999). As would logically be expected, the former group had a higher mean ITG score ($M = 103.9$, $SD = 15.8$) than the latter group ($M = 77.1$, $SD = 17.8$), $t(53) = -5.72$, $p < .001$. Receiver Operating Characteristic (ROC) analysis was used to determine the best ITG cutoff score. In ROC analysis, a ROC curve is obtained by plotting the true-positive rate (sensitivity) against the false-positive rate (1−specificity) for each possible cutoff score. In general, the best cutoff point is the point on the ROC curve that is closest to the upper left-hand corner of the curve (Fletcher, Fletcher, & Wagner, 1996).
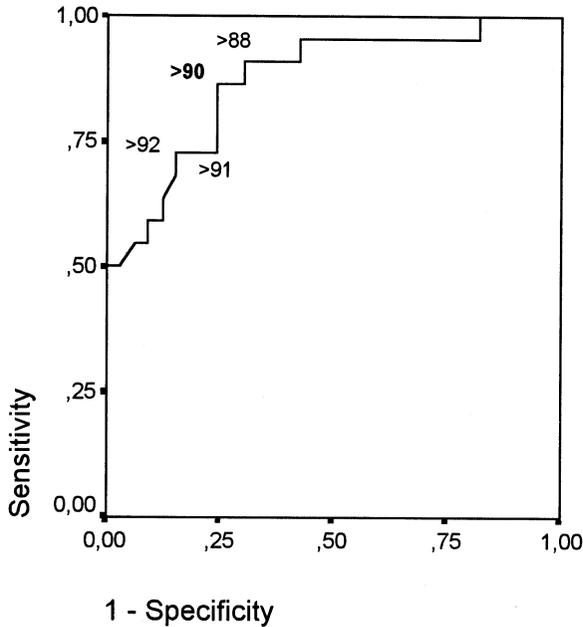
FIGURE 1. The Receiver Operating Characteristic Curve of the Inventory of Traumatic Grief representing potential cutoff points

As can be seen from the ROC curve presented in Figure 1, the ITG score that optimally classified participants as meeting or not meeting the criteria for traumatic grief was > 90. Using this cutoff score, the ITG correctly classified 19 of the 22 participants with traumatic grief, pointing at a sensitivity of 86%. In addition, 25 out of 33 participants were correctly classified as not meeting the traumatic grief criteria, indicating a specificity of 76%. In total, 80% of the participants interviewed were classified correctly.

General Discussion

Two studies were conducted to examine the psychometric properties of the Dutch version of the ITG. In Study 1, the factor structure and reliability were examined with bereaved individuals who had suffered the loss of a first-degree relative in the previous three years and who

had sought help in the aftermath of their loss. The internal consistency and short-term temporal stability of the ITG were found to be high, attesting to its reliability. Exploratory factor analysis indicated that the ITG, just as its predecessor the ICG (Prigerson, Maciejewski et al., 1995), measured a single underlying construct. Although Prigerson et al. (1999) conceptualized symptoms of traumatic grief as falling into two categories (separation distress and traumatic distress), we found no indications that symptoms of separation distress and traumatic distress formed two separate, statistically distinguishable constructs. In this regard, our findings parallel results from earlier studies in which it was found that, statistically, maladaptive symptoms of grief clustered together into one underlying factor (e.g., Chen et al., 1999; Prigerson, Frank et al., 1995, Prigerson, Maciejewski et al., 1995). However, our findings do not preclude that, phenomenologically, separation distress and traumatic distress may represent different constructs and that it is clinically and theoretically relevant to distinguish the two constructs (cf. Prigerson et al., 1999). That we found a unidimensional structure in our statistical analyses would then be explained by symptoms in both clusters being highly correlated.

Study 2 aimed to explore the validity of the ITG, with a group of bereaved mental health care patients who suffered a first-degree loss. With regard to the discriminative validity, the ITG was found to be sensitive to variations in cause of loss; consistent with what was expected, participants whose loved ones died of unnatural causes were found to have higher ITG scores than participants whose loved ones died of natural causes. In support of its concurrent validity, the ITG was found to be significantly associated with different symptoms of psychopathology. The ITG was found to share 42% variance with depression and 34% variance with anxiety (as measured by the SCL-90). The findings are consistent with earlier studies that have shown that traumatic grief, depression, and anxiety are related but distinguishable syndromes (Chen et al., 1999; Prigerson, Bierhals et al., 1997). Consistent with the fact that the ITG was designed to measure maladaptive symptoms of grief that would be expected to be associated with psychological impairment—whereas the TRIG was developed to measure the more benign symptoms of grief that would be expected to be related to morbidity to a lesser extent—we found that the ITG was significantly more associated with different symptoms of psychopathology than the TRIG. These findings attest to the construct validity of the ITG.

Study 2 also aimed to set an ITG cutoff score for a diagnosis of traumatic grief according to the consensus criteria of Prigerson et al. (1999). It was found that, with a cutoff-score of > 90, 80% of the participants who were included in the analyses were correctly classified as meeting or not meeting criteria for traumatic grief. This finding provides evidence in favor of the criterion validity of the ITG and attests to the strength of the ITG as a tool for identifying people who suffer from Traumatic Grief. However, using the ITG for this purpose should be done with some caution. The cutoff score might imply that normal grief and traumatic grief are dichotomous constructs, whereas, like many mental conditions, both constructs are perhaps better viewed as two extremes of a continuum (cf. Dwyer, 1996). Thus, the cutoff score should be regarded as a score indicating a severity of maladaptive grief reactions that puts the individual "at risk" for meeting the consensus criteria for traumatic grief. In addition, because cutoff scores "inherently result in misclassifications" (Dwyer, 1996, p. 360), we do not recommend clinicians to diagnose traumatic grief solely on the basis of the ITG score. Rather, clinicians are advised to use the ITG in combination with other diagnostic tools (e.g., the TRGR2L).

It should be noted that it is likely that bereaved individuals with little or no grief reactions were underrepresented in the present studies, given that the samples we used consisted of bereaved individuals who had sought some form of help or treatment after their loss. Thus, on the one hand it may be stated that the results should be viewed cautiously with regard to their generalization to the general population of adults who suffered a first-degree loss, which also includes people with lower levels of grief. On the other hand, however, it can be argued that the underrepresentation of individuals with lower levels of grief does not seriously affect the generalizability of the findings to this population. That is, the underrepresentation of this particular group implies that the range of grief reactions present in the samples (moderate to severe) is smaller than the range of grief reactions in the population (none to severe). The consequences of this so-called "restriction in range" phenomenon are (a) that the correlations between the ITG and other variables are underestimated, (b) that the internal consistency of the ITG is underestimated because both the observed and true score variances are underestimated, and (c) that the correlations between the individual items of the ITG are underestimated (the larger these correlations, the more evidence for a one-factor solution; cf. Edwards, 1976, pp. 60–61. Stated otherwise,

the reliability and validity of the ITG in the general population are likely to be at least as good as the reliability and validity found in the present studies.

To summarize, the present research has indicated that the ITG is a reliable and valid tool to measure maladaptive symptoms of grief. Thus, the ITG may be a valuable instrument for studies on risk factors for and the prevalence and consequences of maladaptive forms of grief. In addition, our findings indicate that the questionnaire allows for the identification of individuals who suffer from clinical levels of traumatic grief as defined by Prigerson et al. (1999). Future research may be aimed at establishing the reliability and validity of the ITG across non-assessed bereaved populations (e.g., bereaved children, bereaved elders, those who suffered a loss other than the loss of a first-degree relative).

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