



## A confirmatory factor analysis of combined models of the Harvard Trauma Questionnaire and the Inventory of Complicated Grief-Revised: Are we measuring complicated grief or posttraumatic stress?

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### ABSTRACT

The aim of this study was to assess the factorial structure of complicated grief (CG) and investigate the relationship between CG and posttraumatic stress disorder (PTSD) through the assessment of models combining both constructs. The questionnaire was completed by elderly, married respondents with a history of at least one significant, interpersonal loss (145 males and 147 females, 60–81 years). Confirmatory factor analysis (CFA) supported a two-factor model of separation and traumatic distress in CG. To investigate the relationship between CG and PTSD three combined models were specified and estimated using CFA. A model where all five factors, the two factors of CG and the three factors of PTSD, as defined by the DSM-IV, were allowed to correlate provided the best fit. The results indicated a considerable overlap between the dimensions of CG and PTSD, and complicated grief is construct that appears to be largely accounted for by especially the intrusive component of PTSD.

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### 1. Confirmatory factor analysis of the Inventory of Complicated Grief-Revised: are we measuring complicated grief or posttraumatic stress?

Uncomplicated or natural grief consists of painful but moderate disruptions of daily life over the first months after the loss. Natural grief reactions are characterized by disturbances of cognitive, emotional, physical or interpersonal functioning (Bonanno & Kaltman, 2001). Studies estimate that 85–90% of bereaved adult individuals from Western societies go through an uncomplicated grieving process whereas 10–15% of the bereaved are likely to have detrimental complications following bereavement such as post-traumatic stress disorder (PTSD), depression, or anxiety disorders (Bonanno & Kaltman, 1999). During the last decade a considerable amount of research has been conducted on developing diagnostic criteria of complicated grief (CG) as a psychiatric disorder specific to the bereavement experience (Jacobs, Mazure, & Prigerson, 2000; Prigerson, Maciejewski, et al., 1995). The Inventory of Complicated Grief-R (ICG-R) has been found to be a measure of CG that produces reliable scores. Items from the ICG-R closely correspond to the symptoms contained in the diagnostic proposal of CG (Jacobs et al., 2000; Prigerson, Maciejewski, et al., 1995). The definition of CG,

and the measures used to assess it, have undergone several changes during the last decade (Prigerson et al., 2009), and the question is whether CG captures a disorder only specific to bereavement.

#### 1.1. Complicated grief

The diagnosis of CG was designed to capture grief reactions complicated enough to be considered pathological. CG as a bereavement specific disorder is argued to be clearly distinct from other complications of the natural grieving process such as posttraumatic stress disorder (PTSD) and depression, and if left untreated CG can be associated with enduring mental and physical health morbidity (Boelen, van den Hout, & van den Bout, 2008; Jacobs et al., 2000; Prigerson, Maciejewski, et al., 1995). CG can be assessed six months after the loss, and is classified by three of four daily symptoms of separation distress, six of eleven daily symptoms of traumatic distress, a symptom-duration of six months, and significant impairment in social, occupational, or other important areas of functioning. Theoretically CG consists of two factors: symptoms of separation anxiety as reactions to the irrevocable separation from the deceased and symptoms of traumatic distress relating to the impact of the loss experience (Jacobs et al., 2000; Prigerson, Maciejewski, et al., 1995). However, findings from studies that have used exploratory factor analysis (EFA) to investigate the factorial validity of different measures of CG supported a one-dimensional structure where all the symptoms of CG load strongly on a single factor (Boelen,

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van den Bout, & de Keijser, 2003; Prigerson et al., 2006; Prigerson, Maciejewski, et al., 1995). A replication study using confirmatory factor analysis (CFA) on a large population of bereaved individuals found that complicated grief, bereavement related depression, and anxiety were distinct symptom clusters, and that symptoms of complicated grief mainly loaded on a single factor (Boelen & van den Bout, 2005). Thus, previous studies indicated that complicated grief may be best conceptualized within a single factor model, despite the theoretical framework pointing to a two-factor model.

Recently the diagnosis of CG has been further refined and renamed Prolonged Grief Disorder (PGD; Prigerson et al., 2009). In PGD, the symptom criterion has been reduced to one of two daily symptoms of separation distress and five of nine daily cognitive, emotional, or behavioural symptoms. While some of the original CG symptoms were excluded in PGD, two new symptoms were added: one of separation distress in relation to daily experiences of intrusive thoughts related to the lost relationship, and one of intense feelings of emotional pain, sorrow, or pangs of grief when confronted with the loss (Prigerson et al., 2009). It is noted that the symptoms of PGD must not be better accounted for by major depressive episodes, general anxiety disorder, or PTSD (Smith, Kalus, Russell, & Skinner, 2009). The two added symptoms in PGD have a remarkable resemblance with symptoms of intrusion in regard to PTSD as defined in DSM-IV by “recurrent and intrusive recollection of the event, including images, thoughts, or perceptions” and “intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event” or “physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event” (American Psychiatric Association, 1994, p. 468).

### 1.2. Bereavement and PTSD

PTSD has previously been identified as a type of complication that can arise after the loss of a loved person (Bonanno & Kaltman, 1999). The core symptoms required for a diagnosis of PTSD are; at least one of five symptoms of persistent intrusion of the traumatic event, at least three of seven symptoms of persistent avoidance or numbness, and at least two of five symptoms of persistent increased arousal. A duration criterion of one month and functional criterion are also included (American Psychiatric Association, 1994).

If the death of a loved one (criterion A1) is combined with a feeling of intense fear, helplessness, or horror (criterion A2), the event fulfils criterion A and can be considered a possible traumatic event (American Psychiatric Association, 1994). That is, the death of a spouse may be considered traumatic if the bereaved person reacts with intense helplessness or fear in relation to the death, even when the spouse dies due to natural causes. This definition is in line with findings from recent studies of PTSD in bereaved adults. A review of associations between mood and anxiety disorders and widowhood found that 12% suffered from PTSD during the first year of bereavement (Onrust & Cuijpers, 2006). A number of studies of old age bereavement found a PTSD prevalence of 9–27% shortly after the death of the spouse (Brady, Acierno, Resnick, Kilpatrick, & Saunders, 2004; Elklit & O'Connor, 2005; Melhem et al., 2001; Zisook, Chentsova-Dutton, & Shuchter, 1998), whereas another study found a PTSD prevalence of 16% both at two months and 18 months postbereavement (O'Connor, in press).

Using CFA, Simms, Watson, and Doebbeling (2002) proposed a new four-factor model of PTSD with intrusion, avoidance, dysphoria, and arousal factors which conceptualized the disorder better than the original DSM-IV three-factor model of PTSD. The validity of this model has been supported subsequently by a large-scale study of whiplash patients testing five different models of PTSD

(Elklit & Shevlin, 2007), and in a study of bereaved adults testing another five models (Boelen et al., 2008).

### 1.3. Complicated grief and posttraumatic stress disorder

When arguing the case for CG as a distinct disorder, it has been noted that CG includes symptoms separate from those of depression, such as intense intrusive thoughts, avoidance of activity relating to the deceased, yearning and searching for the deceased, loneliness, etc. (Horowitz, Siegel, Hoken, & Bonanno, 1997; Prigerson, Frank, et al., 1995). However, these symptoms appear to overlap substantially with symptoms of PTSD. This observation is supported by a number of studies that found high correlations between CG and PTSD (e.g. Cohen, 2006; Ehlers, 2006; Lichtenthal, Creuss, & Prigerson, 2004). A study (Bonanno et al., 2007) using a nine item screening measure for CG reported high correlations between PTSD and CG ( $r = .66$ ), PTSD and depression ( $r = .76$ ), and a moderate correlation between CG and depression ( $r = .49$ ). Looking at the subscale level of PTSD using the Simms four-factor model based on the PTSD Symptom Scale (self-report), Boelen et al. (2008) found that the dysphoria ( $r = .76$ ) and the intrusion ( $r = .70$ ) factors of PTSD had higher correlations with a unidimensional measure of CG, than did the avoidance ( $r = .48$ ) and arousal ( $r = .44$ ) factors of PTSD.

While PTSD and CG share some of the same symptoms in relation to intrusion and dysphoria, CG has been argued to be theoretically distinct from PTSD in relation to separation distress (Lichtenthal et al., 2004; Prigerson et al., 2009). Furthermore, PTSD often involves more pronounced anxiety than CG when confronted with intrusive memories of the traumatic event, while in CG intrusive memories of the lost relationship may offer some elements of comfort (Lichtenthal et al., 2004). These findings were supported by a study that compared CG, depression, and PTSD, and found that CG predicted functioning in the bereaved over and above PTSD and depression (Bonanno et al., 2007). They also found that PTSD at four months post-loss predicted increased heart rate when confronted with the lost relationship, whereas CG predicted decreased heart rate (independent of depressive symptoms).

There seems to be some support in the literature that CG may in fact identify a specific bereavement related disorder. However, the above mentioned research evidence indicated a more substantial overlap between the two constructs than could be expected based on the theoretical distinctions between CG and PTSD, and when looking at the specific symptoms of CG and PTSD several similarities appear. Until now studies investigating the relationship between CG and PTSD mainly used EFA and have not been able to test specific hypotheses. However, CFA allow different models combining the two constructs to be tested and compared using objective statistical indices of model fit. It is proposed that testing alternative models may provide further knowledge about the nature of the relationship between CG and PTSD.

The objective of this study was to employ CFA to investigate the following hypotheses: (1) based on the theory behind CG this construct was expected to be best conceptualized as a two-factor model, (2) based on the previous findings in the literature, it was hypothesized that the combination of CG and PTSD was best conceptualized as a model including two very closely related but not completely overlapping constructs.

To investigate the factor structure of CG and the relationship between CG and PTSD, measured using the Harvard Trauma Questionnaire (HTQ; Mollica et al., 1992), the following three combined models were specified and estimated using CFA. Model 1 was a one-factor model with all items of ICG-R and HTQ loading on a single latent variable. This model was tested to allow for the possibility that ICG-R measures a set of symptoms that, though specific to the bereavement experience, also is accounted for by PTSD. Model 2

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