



## Mediating processes in bereavement: The role of rumination, threatening grief interpretations, and deliberate grief avoidance

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### ABSTRACT

Limited research so far has examined coping processes that mediate between risk factors and bereavement outcome. Knowledge of these pathways is important, since it helps establish why some bereaved persons are more vulnerable than others and suggests possibilities for intervention. In this international longitudinal study, three potentially critical mediators, namely rumination, threatening grief interpretations and deliberate grief avoidance, were examined in relationship to previously established risk factors (e.g., expectedness of the death, attachment style) and four major outcome variables (grief, depressive symptoms, emotional loneliness and positive mood). Individuals who were recently bereaved (maximum 3 years) filled in questionnaires at three points in time. Results showed that rumination and – to a somewhat lesser extent – threatening grief interpretations played an important role in mediating the effects of various risk factors on outcomes. However, the contribution of these two mediators was dependent on the specific risk factor and outcome measure under consideration. For example, whereas the effect of neuroticism on grief was mediated by both processes (to the extent of 73%), the effect of neuroticism on positive mood was only mediated by rumination and to a smaller extent (23%). A few risk factors, such as current financial situation and spirituality, were not mediated by either coping strategy. Implications of these findings are discussed.

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Bereavement is a highly stressful life-event that is associated with excess risk of mortality and with decrements in both physical and mental health (for a review, see [Stroebe, Schut, & Stroebe, 2007](#)). While most people are able to adjust to the death of a loved one without long-lasting difficulties, a significant minority of the bereaved do not adapt well and continue to experience difficulties ([Bonanno & Mancini, 2008](#)). Much research has focused on so-called “risk factors”, that is, situational and personal characteristics likely to be associated with increased vulnerability across the spectrum of bereavement outcome variables ([Stroebe, Folkman, Hansson, & Schut, 2006](#)). An important impetus for this line of work is that early identification of those at risk of suffering lasting health consequences makes it possible to intervene and possibly prevent negative outcomes. It is particularly critical to identify such at-risk persons, because there is no empirical evidence that provision of routine psychological intervention,

simply on the grounds that a person has suffered a bereavement, is effective ([Currier, Neimeyer, & Berman, 2008](#)).

Although the above line of research is clearly valuable, it is also limited in the sense that it fails to inform one about pathways through which these predictors reach their effects. How, for instance, do unexpected deaths become associated with complications in bereavement? Knowledge of intermediate mechanisms is essential, not just for theoretical but also for practical purposes. For example, knowledge of the pathways through which risk factors influence bereavement outcome should enable us to identify cognitive processes that may be amenable to change, and provide us with targets for intervention. This is imperative, because many risk factors themselves are either resistant to change (e.g., personality factors, such as neuroticism and attachment style) or cannot be changed at all (e.g., risk factors having to do with the deceased and the bereavement situation).

In a previous study a number of situational and personal characteristics that are associated with increased vulnerability after bereavement were identified ([van der Houwen, Stroebe, et al., 2010](#); see [Table 1](#) for an overview of these factors). All of these

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**Table 1**  
Overview of risk factors.

	Grief		Depressive symptoms <sup>a</sup>		Emotional loneliness		Positive mood	
	B	SE	B	SE	B	SE	B	SE
Gender (0 = male, 1 = female)	5.878***	1.694					–3.656*	1.786
Attachment anxiety					0.034***	0.008		
Attachment avoidance	0.064***	0.017	0.115***	0.026	0.033***	0.008	–0.124***	
Neuroticism	0.157*	0.072	0.329**	0.103			0.266***	0.075
Spirituality							1.033*	0.438
Kinship (0 = partner)								
Parent					–1.219*	0.566		
Child					–1.588***	0.464		
Sibling					–0.166	0.821		
(Un)expectedness	1.214***	0.324	1.133*	0.464				
Financial situation deterioration	1.845 <sup>†</sup>	0.947			1.077*	0.431		
Adequacy of financial situation			–3.316*	1.416				
Social support	1.134**	0.351	1.785***	0.535			–1.230**	0.397

<sup>†</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

<sup>a</sup> We also found that taking medications for anxiety, mood or sleep problems was related to depressive symptoms. This factor was not included in the analyses because we felt these variables were directly related (without mediating processes).

risk factors exerted their influence through main effects. There were no interactions with time of measurement. Thus, even though there was significant improvement in grief, depressive symptoms, emotional loneliness and positive mood during the course of this study, these risk factors appeared to neither accelerate nor slow down this process.

In the current study we build on this previous research to examine mechanisms that mediate the impact of these risk factors, focusing on cognitive and behavioural coping processes (while recognizing that there are other mechanisms that influence bereavement outcome). Although a considerable amount of research has been devoted to these processes and how they influence bereavement outcome, to our knowledge, few studies have simultaneously examined risk factors, outcomes and the coping processes that might mediate between them. Some of these studies have focused on specific types of bereavement, whereas others have examined more general risk factors. We review these two types of investigation in turn next.

Field et al investigated mediating factors in adjustment among a sample of conjugally bereaved people (Field, Hart, & Horowitz, 1999; Field & Sundin, 2001). They showed that the effects of anxious attachment (to the deceased spouse) and previous relationship conflict (with the deceased spouse) were mediated by the appraised inability to cope and by blame-related appraisals respectively. Wolchik et al examined the mediational properties of three self-system beliefs (fear of abandonment, coping efficacy, and self-esteem) between post-bereavement stressors (e.g., changes in living situations) and caregiver–child relationship quality, on the one hand, and mental health problems (e.g., internalizing and externalizing problems) on the other within a sample of parentally bereaved children (Wolchik, Ma, Tein, Sandler, & Ayers, 2008; Wolchik, Tein, Sandler, & Ayers, 2006). They found – among other things – that fear of abandonment mediated the relations between stressors and both internalizing problems and externalizing problems when examined longitudinally.

Turning now to the investigations that have focused on more general risk factors: Meuser and Marwit (1999) and Robinson and Marwit (2006) investigated whether different forms of coping mediated the relationship between personality and bereavement outcome, and concluded that the effect of neuroticism on grief was partly mediated by emotion-oriented coping. Currier, Holland, and Neimeyer (2006) examined sense-making (i.e., the capacity to construct an understanding of the loss experience) as a possible mediator between violent death and complicated grief symptomatology. They reported that sense-making emerged as an

explanatory mechanism for the association between violent loss and complications in grieving. Nolen-Hoeksema, Parker, and Larson (1994) hypothesized and confirmed that the effect of four different risk factors (female gender, additional stress, poor social support and initially severe depressive reactions) on depressive reactions was mediated by rumination. In another study the same researchers demonstrated that sense-making and benefit-finding mediated the effects of dispositional optimism-pessimism, religious-spiritual beliefs, and the age at death of the deceased on distress (a composite measure of depressive symptoms, PTSD symptoms, and positive affect, reverse coded) (Davis, Nolen-Hoeksema, & Larson, 1998).

The above research clearly identifies a number of central processes relating to bereavement outcomes. However, knowledge about mediational coping processes remains limited: (1) A number of the risk factors studied are specific to certain types of bereavement, which limits the applicability of the information acquired to these particular kinds of bereavement; (2) Additional, potentially important mediators have not yet been investigated.

How can one identify such mediators? As mentioned earlier, although few studies have simultaneously examined risk factors, outcomes and the coping processes that might mediate between them, further research has indeed investigated a number of coping processes that might account for differences in bereavement outcome. Examples of processes that have received attention over the years are emotional expression (e.g. Stroebe, Stroebe, Schut, Zech, & van den Bout, 2002), cognitive appraisals (e.g. Boelen, van den Bout, & van den Hout, 2006), continuing bonds (e.g. Boelen, Stroebe, Schut, & Zijerveld, 2006), meaning-making (e.g. Davis et al., 1998), rumination (e.g. Nolen-Hoeksema, 2001), and deliberate grief avoidance (e.g. Shear et al., 2007). While all of these processes may be important, in this study we focus on coping processes that have consistently been associated with poor adjustment, either in cross-sectional or longitudinal studies: rumination, threatening grief interpretations (i.e., negative and fearful interpretations of grief reactions that are not necessarily indicative of disturbance) and deliberate grief avoidance. Moreover, some theorists have claimed that negative cognitions and avoidance (among which rumination can be counted, see e.g., Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008) play a central role in the development and maintenance of complicated grief (Boelen, van den Hout, & van den Bout, 2006; Shear et al., 2007). Thus, it seems particularly important to investigate the mediating role of these three processes in the relationship between risk factors and outcome variables.

In summary then, in this study we examined the mediating properties of rumination, threatening grief interpretations and deliberate grief avoidance between general risk factors (that were identified as important in an earlier study) and outcome in terms of grief, depressive symptoms, emotional loneliness and positive mood.

## Method

### Participants

This investigation was part of a larger METiGG-approved study that looked at the efficacy of an e-mail based writing intervention for bereaved people (van der Houwen, Schut, van den Bout, Stroebe, & Stroebe, 2010). Recruitment took place over a 7-month period, between October 2006 and May 2007. Only data from participants who were assigned to the control condition were included in the present study. Participants were recruited in two ways: (1) via the internet, through websites, forums, and e-mail groups that focus on bereaved persons; and (2) via organizations and support groups for the bereaved. Due to the worldwide accessibility of the Internet, the sample is not drawn from a specific area or country. To be included in the study, people had to meet the following criteria at the time of registration: (1) at least 18 years of age, (2) native English speaker, (3) having experienced the death of a first-degree relative, (4) being significantly distressed by this loss. It was stated in the recruitment message and registration form that participants should be native English speakers and significantly distressed by their loss. No inclusion/exclusion criteria were based on a distress score. People who reported that they were suffering from severe depression, schizophrenia, psychotic episodes and/or were seriously considering ending their life were excluded from the study, as were people who suffered their loss at a very early age (and consequently had never consciously known or interacted with the person who died) and people who suffered multiple simultaneous losses. Participants were randomly assigned to receive or not receive the intervention (i.e., to the intervention or control condition respectively). Participants assigned to the control condition were offered the opportunity to participate in the intervention after answering the last set of questionnaires. Further criteria for inclusion in the current investigation were that the loved one had died no more than three years previously and that complete data were available at the first measurement point. The sample consisted of 195 bereaved individuals. Background and loss characteristics are summarised in Table 2.

### Procedure

Participants were sent e-mails inviting them to fill in questionnaires online at three points in time: immediately, and 3 and 6 months after registering for the study. Questionnaires measured background and loss-related variables, and aspects of mental and physical health, personality and coping behaviour. Up to two reminder e-mails were sent if participants failed to respond. Participants who did not respond to the reminder e-mails or who only filled in part of the questionnaires at a certain measurement point were not sent an invitation to fill in questionnaires at the next measurement point. The attrition rate was 27.2% over this 6 month period. A logistic regression analysis was performed with dropout as the dependent variable in order to check for differences between completers and non-completers. Independent variables included the predictor, mediator and outcome variables (of the regular analyses) as well as other relevant background variables. According to the Wald criterion, only emotional loneliness reliably predicted

**Table 2**

Background and loss characteristics of the sample at T1 (N = 195).

Background characteristics	
Sex (N (%))	
Men	15 (7.7%)
Women	180 (92.3%)
Age (in years) (M (SD); minimum - maximum)	41.50 (10.96); 19–79
Education (highest level of schooling) (N (%))	
Primary school/elementary school	0 (0%)
Secondary school/high school (not finished)	5 (2.6%)
Secondary school/high school (finished)	24 (12.3%)
Some post-secondary school	41 (21.0%)
College diploma or equivalent	48 (24.6%)
University degree	45 (23.1%)
Postgraduate degree	32 (16.4%)
Loss characteristics	
Deceased is (N (%))	
Partner	72 (36.9%)
Child	69 (35.4%)
Parent	40 (20.5%)
Sibling	14 (7.2%)
Cause of death	
Natural causes	130 (66.7%)
Accident/homicide	44 (22.6%)
Suicide	21 (10.8%)
Time from loss (in years) (M (SD))	0.91 (0.73)
< 3 months	41 (21.0%)
> = 3 months and < 6 months	31 (15.9%)
> = 6 months and < 9 months	24 (12.3%)
> = 9 months and < 12 months	20 (10.3%)
> = 12 months and < 18 months	39 (20.0%)
> = 18 months and < 24 months	23 (11.8%)
> = 2 years and < = 3 years	17 (8.7%)

dropout: completers experienced less emotional loneliness than non-completers,  $\chi^2 (1, N = 195) = 8.46, p < .01$ .

### Measurement instruments

#### Background and loss-related variables

At the first measurement point questions were asked about age, gender, education level (measured on a 7-point scale), work status, changes in financial situation due to the loss, current financial situation, living situation, involvement in a religious community, level of religiosity and spirituality, formal relationship to the deceased, cause of death (natural causes/accident or homicide/suicide), level of unexpectedness of the death, significant events around time of death, time since death, previous significant losses, and past professional help in dealing with the loss. At each measurement point questions were asked about current professional help in dealing with the loss and medication use.

#### Personality

Attachment organization was measured using the Experiences in Close Relationships-Revised Questionnaire (ECR-R; Fraley, Waller, & Brennan, 2000). The ECR-R assesses individual differences with respect to attachment-related anxiety and attachment-related avoidance. The ECR-R items were originally worded to be relevant to romantic relationships. Following Fraley's suggestions the word "partner" was therefore replaced by the word "others" to make the items relevant to other kinds of relationships. Participants filled out the ECR-R at all three points in time. Cronbach's alpha for both attachment anxiety and attachment avoidance ranged from 0.93 to 0.94.

Neuroticism was measured at the first measurement point using the 8-item subscale of the Big Five Inventory (BFI; John & Srivastava, 1999). In this study, Cronbach's alpha was 0.81.

### Social support

Social support was assessed at all three measurement points with a four-item scale of perceived social support, comprising the same two items for family members and for friends and relatives (a) “On the whole, how much do your family members (friends and relatives) make you feel loved and cared for?” and (b) “How much are your family members (friends and relatives) willing to listen when you need to talk about your worries or problems?” (Stroebe, Zech, Stroebe, & Abakoumkin, 2005). Response categories range from “a great deal” to “not at all”, and “not applicable”. Cronbach’s alpha ranged from 0.87 to 0.92.

### Mediator variables

The three mediator variables were measured at all three points in time. Rumination was measured with a homemade 8-item questionnaire that was based on literature on rumination in general and on rumination in bereavement specifically (e.g. Boelen, Stroebe, et al., 2006; Boelen, van den Bout, et al., 2006; Boelen, van den Hout, et al., 2006; Nolen-Hoeksema, 1991). Examples of items are: “I think about how bad I feel since my [...] died” and “I think about why my [...] has died”. All material can be obtained from the first author. The blanks were filled in with the appropriate relationship word (e.g., son or partner). Items were rated with respect to the past week on a 5-point scale ranging from (almost) never (1) to (almost) constantly (5). Cronbach’s alpha ranged from 0.82 to 0.86, the mean item–total correlation of the 8-items ranged from 0.55 to 0.61, and all items had factor loadings of  $>0.46$  in a one factor solution. Therefore item ratings were summed to form a single score.

Threatening grief interpretations were measured using the two items with the highest factor loadings from the 4-item subscale “Threatening interpretation of grief” of the Grief Cognitions Questionnaire (GCQ; Boelen & Lensvelt-Mulders, 2005): “If I allow my feelings to run loose, I will lose control” and “If I would fully realise what the death of my [...] means, I would go crazy”. The blank was filled in with the appropriate relationship word (e.g., son or partner). Agreement with the items was rated on a 6-point scale ranging from strongly disagree (1) to strongly agree (6). Cronbach’s alpha ranged from 0.68 to 0.74.

Deliberate grief avoidance was measured with 13 items that were formulated on the basis of literature on avoidance in grief (e.g. Boelen, Stroebe, et al., 2006; Boelen, van den Bout, et al., 2006; Boelen, van den Hout, et al., 2006; Bonanno, Papa, Lalande, Zhang, & Noll, 2005). Examples of items are: “I avoid activities I used to do with my [...]” and “I avoid looking at pictures of my [...]”. The blanks were filled in with the appropriate relationship word (e.g., son or partner). Items were rated with respect to the past week on a 5-point scale ranging from (almost) never (=1) to (almost) constantly (=5) or participants could indicate that the item did not apply to them. Cronbach’s alpha ranged from 0.86 to 0.88, the mean item–total correlation of the 13 items ranged from 0.54 to 0.57, and all items had factor loadings of  $>0.41$  in a one factor solution. Therefore a mean avoidance score was calculated by summing item scores and dividing them by the number of items answered.

### Outcome measures

The four outcome variables were also measured at all three points in time.

Grief reactions were measured using 9 items that were formulated on the basis of the criteria for complicated grief proposed for DSM-V (Prigerson, Vanderwerker, & Maciejewski, 2008). It has been shown that these 9 items constitute a concise way of measuring complicated grief (H. Prigerson, personal communication, March 10, 2006). Examples of items are “I have felt that moving on with my life (for example, making new friends, pursuing

new interests) is difficult for me” and “I have felt emotionally numb (e.g. detached from others)”. (Again, all materials can be obtained from the first author.) Items were rated with respect to the past week on a 5-point scale ranging from never (1) to all of the time (5). Cronbach’s alpha ranged from 0.86 to 0.91, and test-retest reliability was 0.66–0.80.

Depressive symptoms were assessed using the Center for Epidemiological Studies–Depression Scale (CES-D; Radloff, 1977). In this study, Cronbach’s alpha ranged from 0.90 to 0.94, and test-retest reliability was 0.60–0.76.

Emotional loneliness was measured using the following two items: (1) I feel lonely even if I am with other people, and (2) I often feel lonely (Stroebe, Stroebe, Abakoumkin, & Schut, 1997). Participants indicated their (dis)agreement with these statements on a 7-point scale ranging from totally disagree (1) to totally agree (7). Cronbach’s alpha ranged from 0.80 to 0.87, and test-retest reliability was 0.50–0.62.

Positive mood was measured using the corresponding 10 items of the Positive Affect Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). In this study, Cronbach’s alpha ranged from 0.91 to 0.95, and test-retest reliability was 0.56–0.71.

### Analyses

A multilevel modelling strategy was adopted for this study. Longitudinal data can be viewed as multilevel data, with repeated measurements nested within individuals. In this study this leads to a two-level model, with the series of repeated measures at the lowest (1st) level, and the participants at the highest (2nd) level. Amongst other advantages, a multilevel approach allows us to add time-varying predictors to our models. Furthermore, it does not assume equal numbers of observations, which means that all cases can remain in the analyses, thereby increasing the precision of the estimates and the power of the statistical tests (Hox, 2002). Finally, with regard to dropout, Little (as cited in Hox, 2002) has shown that when the panel attrition follows a pattern defined as missing-at-random, multilevel analysis leads to unbiased estimates. Multilevel modelling was implemented through SPSS Mixed Models Version 16.02.

### Results

#### Developing and testing the mediation model

First, correlations were calculated between the risk factors, mediators and outcome measures. These analyses showed moderate to high correlations between the three mediator variables (the lowest being 0.24 between rumination and deliberate grief avoidance and the highest being 0.51 between rumination and threatening grief interpretations). Given the significant overlap between the mediator variables, it was decided to examine all mediators simultaneously. Because the impact of the risk factors that we identified does not change over time, we did not control for measurement (mediators or outcome) at Time 1. Based on the recommendations of MacKinnon (2008) a series of multiple regression analyses was used to test the proposed model in which rumination, deliberate grief avoidance and threatening grief interpretations are hypothesized to mediate between the risk factors on the one hand and grief, depressive symptoms, emotional loneliness and positive mood on the other hand. In these regressions we used data from all three time points. For each outcome measure a set of five multiple regressions was performed. Before running these regressions it was determined whether there were any risk factors that were associated with none of the mediators. If so, these risk factors were left out of the regressions. First, the risk factors were



**Table 3**  
The mediation model for grief.<sup>a</sup>

Risk factors	Mediators							
			Rumination ( $b = 0.38^{***}$ , $s.e. = 0.04$ )		Threatening grief interpretations ( $b = 0.63^{***}$ , $s.e. = 0.11$ )		Deliberate grief avoidance ( $b = 0.52$ , $s.e. = 0.36$ )	
	$c$ (s.e.)	$c'$ (s.e.)	$a$ (s.e.)	explained mediation	$a$ (s.e.)	explained mediation	$a$ (s.e.)	explained mediation
Gender	5.86 <sup>***</sup> (1.70)	3.474 <sup>**</sup> (1.306)	3.692 <sup>*</sup> (1.506)	24%	1.412 <sup>*</sup> (0.633)	15%	0.226 (0.199)	–
Attachment avoidance	0.073 <sup>***</sup> (0.017)	0.027 (0.015)	0.057 <sup>***</sup> (0.016)	29%	0.043 <sup>***</sup> (0.007)	37%	0.009 <sup>***</sup> (0.002)	–
Neuroticism	0.177 <sup>*</sup> (0.071)	0.041 (0.055)	0.231 <sup>***</sup> (0.063)	49%	0.068 <sup>*</sup> (0.026)	24%	0.005 (0.008)	–
Social support	1.316 <sup>***</sup> (0.342)	0.741 <sup>*</sup> (0.296)	1.046 <sup>**</sup> (0.327)	30%	0.143 (0.136)	–	0.072 <sup>*</sup> (0.036)	–
Expectedness	1.293 <sup>***</sup> (0.324)	0.632 <sup>*</sup> (0.254)	1.096 <sup>***</sup> (0.288)	32%	0.412 <sup>***</sup> (0.121)	20%	–0.004 (0.038)	–

<sup>\*</sup> $p < .05$ , <sup>\*\*</sup> $p < .01$ , <sup>\*\*\*</sup> $p < .001$ .

<sup>a</sup> Financial situation deterioration was not mediated by any of the processes that were investigated and was therefore not included in the model.

regressed on the outcome measure (regression 1), then the risk factors were regressed on the mediators (regressions 2 to 4), and finally the risk factors and mediators were regressed on the outcome measure (regression 5).

For each combination of predictor variables and mediators, the mediated effect was estimated and then tested for significance using the Sobel test (1982, in MacKinnon, 2008). The proportion of explained mediation was calculated following recommendations by MacKinnon (2008).

#### *The mediational properties of rumination, threatening grief interpretations and deliberate grief avoidance*

The outcomes of the regression analyses are presented in Table 3 through 6. As can be seen in these tables, most of the risk factors were mediated by rumination and many of them also reached their effect via threatening grief interpretations. Interestingly, deliberate grief avoidance did not mediate any of the risk factors. Also, a number of risk factors were not mediated by any of the processes that were investigated.<sup>1</sup>

Rumination turned out to be a somewhat stronger mediator than threatening grief interpretations (this inference is made from a descriptive standpoint – no formal tests were done): the effects of social support on grief and depressive symptoms, and the effects of gender, neuroticism, and social support on positive mood were mediated by rumination, but not by threatening grief interpretations. Moreover, rumination explained a larger proportion of the mediational path, except in the case of attachment avoidance.

The magnitude of the contribution of rumination and threatening grief interpretations was highly dependent on the risk factor and the outcome measure examined. Together, these processes played a moderate to large role in explaining the relationship between grief and depressive symptoms and their respective risk factors. However, threatening grief interpretations especially, but also rumination, played a lesser part in clarifying the pathways between emotional loneliness and positive mood and their associated risk factors.

<sup>1</sup> With regard to the risk factor “kinship”, we found something that has been called inconsistent mediation or suppression. This refers to the situation when the addition of a mediator (in this case rumination) results in a stronger instead of a weaker relationship between the predictor and the outcome measure. An inspection of the correlations between variables involved clarified this. The loss of a partner was associated with less rumination, but with more emotional loneliness than the loss of a child. Rumination and emotional loneliness, on the other hand, were positively correlated. Controlling for rumination would therefore increase the association between partner loss and emotional loneliness.

## Discussion

Findings of the current investigation indicated that both rumination and threatening grief interpretations, but not deliberate grief avoidance, mediated the effect of various risk factors. Rumination appeared to be a somewhat more important mediator than threatening grief interpretations, more often functioning as a mediator and explaining a larger proportion of the mediation. The importance of both processes was dependent on both the risk factor and outcome under examination. Rumination and threatening grief interpretations played a moderate to large role in the prediction of grief and depressive symptoms. However, their contribution (especially that of threatening grief interpretations) to the prediction of emotional loneliness and positive mood was less pronounced. We next review our findings in more detail, describing the results for each of the risk factors examined in turn.

In the current study, the effect of social support on grief, depressive symptoms, and positive mood was shown to be partially mediated by rumination: people with low social support tended to ruminate more, which caused them to have higher levels of grief and depressive symptoms and lower levels of positive mood. Our findings support and extend previous research by Nolen-Hoeksema et al. (1994), who demonstrated that rumination mediated the effect of social support on depressive symptoms. In the same study these researchers also showed that female gender reached its effect on depressive symptoms through rumination. Although we did not test this mediational path (because gender had not been found to be uniquely associated with depressive symptoms in our previous study), gender was shown to influence grief and positive mood partly through rumination: women ruminated more than men, which caused them to have higher levels of grief and lower levels of positive mood.

Gender also influenced grief through threatening grief interpretations: women were more likely than men to assign threatening interpretations to their grief, which in turn caused them to have higher levels of grief. However, the same process did not mediate the relationship between gender and positive mood. Indeed, threatening grief interpretations hardly played any role at all in the prediction of positive mood. Also, rumination was implicated to a lesser extent in the prediction of this outcome measure. It would seem that other mediating processes warrant attention in the case of positive mood. We return to this below.

It is interesting to note that the effect of social support on the various outcome measures does not run via threatening grief interpretations. The hallmark of threatening grief interpretations is that people are convinced that they will not be able to handle the very painful emotions that result from the death of their loved one. Social support comprises four types of support, including appraisal

**Table 4**  
The mediation model for depressive symptoms.<sup>a</sup>

Risk factors	Mediators							
			Rumination ( $b = 0.506^{***}$ , $s.e. = 0.068$ )		Threatening grief interpretations ( $b = 0.741^{***}$ , $s.e. = 0.167$ )		Deliberate grief avoidance ( $b = 0.497$ , $s.e. = 0.580$ )	
	$c$ (s.e.)	$c'$ (s.e.)	$a$ (s.e.)	explained mediation	$a$ (s.e.)	explained mediation	$a$ (s.e.)	explained mediation
Attachment avoidance	0.128 <sup>***</sup> (0.025)	0.066 <sup>**</sup> (0.024)	0.057 <sup>***</sup> (0.016)	22%	0.043 <sup>***</sup> (0.007)	25%	0.009 <sup>***</sup> (0.002)	–
Neuroticism	0.392 <sup>***</sup> (0.102)	0.203 <sup>*</sup> (0.087)	0.252 <sup>***</sup> (0.063)	33%	0.076 <sup>**</sup> (0.027)	14%	0.006 (0.008)	–
Social support	2.246 <sup>***</sup> (0.520)	1.583 <sup>***</sup> (0.470)	1.034 <sup>**</sup> (0.329)	23%	0.136 (0.137)	–	0.071 <sup>*</sup> (0.036)	–
Expectedness	1.366 <sup>***</sup> (0.469)	0.504 (0.403)	1.113 <sup>***</sup> (0.292)	41%	0.417 <sup>**</sup> (0.123)	23%	–0.003 (0.038)	–

<sup>\*</sup> $p < .05$ . <sup>\*\*</sup> $p < .01$ . <sup>\*\*\*</sup> $p < .001$ .

<sup>a</sup> Adequacy of financial situation was not mediated by any of the processes that were investigated and was therefore not included in the model.

(i.e., providing feedback on one's views or behaviour) and emotional support (House, 1981). It could be argued that people who receive more support are more likely to have their beliefs challenged and experience more confidence in confronting their feelings because they do not feel alone in doing so. One would then expect high social support to influence threatening grief interpretations positively, thus leading to improved mental health. At this point it is unclear why social support has no effect on the degree to which people assign threatening interpretations to their grief reactions.

The effect of the expectedness of the death on grief and depressive symptoms was mediated by both rumination and threatening grief interpretations: people whose loved one had died unexpectedly were more likely to ruminate and assign threatening interpretations to their grief, which caused them to have higher levels of grief and depressive symptoms. Both processes together accounted for 52 to 64 percent of the effect, depending on the outcome measure in question. These numbers are quite high, given the fact that full mediation is very unlikely in social science research (MacKinnon, 2008). It is not surprising though that unexpected deaths give rise to rumination and threatening grief interpretations. Rumination focuses attention, amongst other things, on the causes and consequences of the death. Unexpected deaths would seem more likely to invite this kind of thinking than expected deaths (Wong & Weiner, 1981). In a similar vein, it can be argued that unexpected deaths are, on average, more likely than expected deaths to give rise to extreme reactions, which in turn are more likely to be interpreted as threatening.

For the personality factors investigated in this study, the effects of attachment style and neuroticism were also mediated by both rumination and threatening grief interpretations (except for the relationship between neuroticism and positive mood, which was only mediated by rumination). It is interesting to note that, whereas

rumination explained a larger proportion of the mediation for most risk factors, threatening grief interpretations was an equally – and in some instances more – important mediator in the case of attachment avoidance. This makes perfect sense from a theoretical point of view. People who are high in attachment-related avoidance have learned to deal with distress by minimizing attachment-related feelings and behaviour. They would be easily threatened by the strong feelings of separation distress that occur when a loved one dies (Mikulincer & Shaver, 2008).

Contrary to expectations, deliberate grief avoidance did not mediate any of the risk factors when examined simultaneously with rumination and threatening grief interpretations. This is noteworthy, because researchers have claimed that this process plays a central role in the development and maintenance of complicated grief (Boelen, Stroebe, et al., 2006; Boelen, van den Bout, et al., 2006; Boelen, van den Hout, et al., 2006; Shear et al., 2007). Two possible reasons why our findings failed to show this seem plausible: First, most of the persons in this study had low scores on this measure of avoidance, suggesting that they did not consciously avoid reminders of their grief. This is perhaps not surprising, given the way the sample for this study was selected: via online and offline groups that focus on bereaved persons. It seems likely that people who prefer not to be reminded of their bereavement will refrain from joining such groups. The lack of variance in this measure alone, then, could explain the null findings. Another reason is suggested by Boelen and van den Hout (2008), who found that the detrimental effect of deliberate grief avoidance is particularly pronounced when people have threatening misinterpretations about the consequences of confronting the loss. It is less pronounced when people do not have such misinterpretations.

A few variables were not mediated by any of the processes investigated: financial situation deterioration, inadequate financial

**Table 5**  
The mediation model for emotional loneliness.<sup>a</sup>

Risk factors	Mediators							
			Rumination ( $b = 0.109^{***}$ , $s.e. = 0.024$ )		Threatening grief interpretations ( $b = 0.151^*$ , $s.e. = 0.060$ )		Deliberate grief avoidance ( $b = -0.171$ , $s.e. = 0.203$ )	
	$c$ (s.e.)	$c'$ (s.e.)	$a$ (s.e.)	Explained mediation	$a$ (s.e.)	Explained mediation	$a$ (s.e.)	Explained mediation
Attachment anxiety	0.038 <sup>***</sup> (0.008)	0.028 <sup>***</sup> (0.008)	0.076 <sup>***</sup> (0.015)	22%	0.023 <sup>***</sup> (0.006)	9%	0.004 <sup>*</sup> (0.002)	–
Attachment avoidance	0.038 <sup>***</sup> (0.008)	0.026 <sup>**</sup> (0.008)	0.065 <sup>***</sup> (0.016)	19%	0.041 <sup>***</sup> (0.007)	16%	0.009 <sup>***</sup> (0.002)	–
Kinship (0 = partner)								
Parent	–1.625 <sup>*</sup> (0.549)	–1.499 <sup>**</sup> (0.508)	–0.147 (1.167)	–	–0.644 (0.490)	–	0.061 (0.146)	–
Child	–1.836 <sup>***</sup> (0.463)	–2.269 <sup>***</sup> (0.433)	3.381 <sup>***</sup> (0.987)	Suppression	0.315 (0.415)	–	–0.064 (0.124)	–
Sibling	–0.479 (0.826)	–0.938 (0.766)	3.135 (1.748)	–	0.723 (0.735)	–	0.107 (0.218)	–

<sup>\*</sup> $p < .05$ . <sup>\*\*</sup> $p < .01$ . <sup>\*\*\*</sup> $p < .001$ .

<sup>a</sup> Financial situation deterioration was not mediated by any of the processes that were investigated and was therefore not included in the model.

**Table 6**The mediation model for positive mood.<sup>a</sup>

Risk factors	Mediators		Rumination ( $b = -0.250^{***}$ , $s.e. = 0.056$ )		Threatening grief interpretations ( $b = -0.310^*$ , $s.e. = 0.137$ )		Deliberate grief avoidance ( $b = -0.750$ , $s.e. = 0.480$ )	
	$c$ ( $s.e.$ )	$c'(s.e.)$	$a$ ( $s.e.$ )	Explained mediation	$a$ ( $s.e.$ )	Explained mediation	$a$ ( $s.e.$ )	Explained mediation
Gender	–3.589 <sup>*</sup> (1.811)	–2.023 (1.751)	3.822 <sup>*</sup> (1.556)	27%	1.458 <sup>*</sup> (0.653)	–	0.226 (0.199)	–
Attachment avoidance	–0.133 <sup>***</sup> (0.019)	–0.099 <sup>***</sup> (0.020)	0.054 <sup>***</sup> (0.016)	10%	0.042 <sup>***</sup> (0.007)	10%	0.009 <sup>***</sup> (0.002)	–
Neuroticism	–0.277 <sup>***</sup> (0.076)	–0.187 <sup>*</sup> (0.074)	0.253 <sup>***</sup> (0.065)	23%	0.076 <sup>**</sup> (0.027)	–	0.005 (0.008)	–
Social support	–1.228 <sup>**</sup> (0.400)	–0.900 <sup>*</sup> (0.387)	0.977 <sup>**</sup> (0.331)	20%	0.111 (0.138)	–	0.072 <sup>*</sup> (0.036)	–

<sup>\*</sup> $p < .05$ . <sup>\*\*</sup> $p < .01$ . <sup>\*\*\*</sup> $p < .001$ .<sup>a</sup> Spirituality was not mediated by any of the processes that were investigated and was therefore not included in the model.

means, spirituality, and kinship. With regard to the adequacy of the current financial situation, it seems plausible that a different form of repetitive thinking than rumination may have played a role in mediating its effect on depressive symptoms, namely, worry. Worry typically involves repetitive thinking about future potential threat, imagined catastrophes, uncertainties, and risks (Watkins, 2008). People with insufficient financial means may very well worry about their predicament, which in turn increases their level of depressive symptoms. Likewise, different processes than those investigated here could account for the relationship between spirituality and positive mood, namely, sense-making and benefit-finding (Davis et al., 1998). Whereas other mediating processes than those investigated here are likely to be relevant in the case of current financial situation and spirituality, there may not be any mediating processes involved in the case of financial deterioration and relationship to the deceased. It is possible that the changed financial situation serves as a constant reminder of the absence of the loved person, thereby directly increasing feelings of grief and emotional loneliness. Along the same lines it can be argued that losing one's closest emotional attachment (i.e. one's partner) directly influences feelings of emotional loneliness.

In discussing our findings we already mentioned one shortcoming of this study and how it may have affected the results: selecting participants via support groups may have hindered our ability to properly examine the mediating properties of deliberate grief avoidance. Also, one must be cautious in generalizing from these findings to the general population of all bereaved persons, given the fact that participants were (1) self-selected, (2) to a large extent recruited via the Internet, (3) mostly female, and (4) within the first three years of their bereavement. This is particularly true for the patterns of gender differences that we found, given that only a small sample of men could be included. On the one hand, these patterns of gender differences may indicate robustness; on the other hand, we need to keep in mind that this small sample may not be representative of the larger male population.

Since the impact of the risk factors identified in this study did not change over time, it made no sense to control for measures of outcome and mediating variables at Time 1. Had we been able to demonstrate (and explain) changes in the outcome measures over time, we could have been more certain about the issue of causality (although it is important to stress that it is impossible to demonstrate true causality with longitudinal or even prospective designs; for this experimental studies are necessary). We assume, both on theoretical grounds (e.g. Boelen, Stroebe, et al., 2006; Boelen, van den Bout, et al., 2006; Boelen, van den Hout, et al., 2006; Shear et al., 2007) and previous research, in which Nolen-Hoeksema et al. (1994) demonstrated that rumination mediated the effect of social support on *change* in depressive symptoms, that reducing rumination and threatening grief interpretations would reduce

grief, depressive symptoms, and emotional loneliness and increase positive mood. However, empirically, we cannot exclude the possibility that we are dealing with parallel processes or even that the coping processes we investigated are a consequence of the outcome measures.

This study shows that threatening grief interpretations and especially rumination play an important mediating role in bereavement outcome. These findings are in line with current theorizing (see Boelen, van den Bout et al., 2006). They also suggest possibilities for intervention. Boelen et al developed and tested a therapy that focuses, among other things, on changing negative cognitions, such as threatening grief interpretations. Their therapy compared favourable to supportive counselling in a sample of bereaved persons with clinically significant levels of complicated grief (Boelen, de Keijser, van den Hout, & van den Bout, 2007). While we know of no grief therapies that specifically focus on ruminative coping, we do know that techniques exist, such as mindfulness meditation, that can be successfully applied to reduce rumination (Jain et al., 2007) and that could be incorporated in traditional grief therapy.

## References

- Boelen, P. A., de Keijser, J., van den Hout, M. A., & van den Bout, J. (2007). Treatment of complicated grief: a comparison between cognitive-behavioral therapy and supportive counselling. *Journal of Consulting and Clinical Psychology*, 75, 277–284.
- Boelen, P. A., & Lensvelt-Mulders, G. J. L. M. (2005). Psychometric properties of the grief cognitions questionnaire (GCQ). *Journal of Psychopathology and Behavioral Assessment*, 27, 291–303.
- Boelen, P. A., Stroebe, M. S., Schut, H. A. W., & Zijerveld, A. M. (2006). Continuing bonds and grief: a prospective analysis. *Death Studies*, 30, 767–776.
- Boelen, P. A., van den Bout, J., & van den Hout, M. A. (2006). Negative cognitions and avoidance in emotional problems after bereavement: a prospective study. *Behaviour Research and Therapy*, 44, 1657–1672.
- Boelen, P. A., & van den Hout, M. A. (2008). The role of threatening misinterpretations and avoidance in emotional problems after loss. *Behavioural and Cognitive Psychotherapy*, 36, 71–87.
- Boelen, P. A., van den Bout, M. A., & van den Hout, J. (2006). A cognitive-behavioral conceptualization of complicated grief. *Clinical Psychology: Science and Practice*, 13, 109–128.
- Bonanno, G. A., & Mancini, A. D. (2008). The human capacity to thrive in the face of potential trauma. *Pediatrics*, 121, 369–375.
- Bonanno, G. A., Papa, A., Lalande, K., Zhang, N., & Noll, J. G. (2005). Grief processing and deliberate grief avoidance: a prospective comparison of bereaved spouses and parents in the United States and the people's republic of China. *Journal of Consulting and Clinical Psychology*, 73, 86–98.
- Currier, J. M., Holland, J. M., & Neimeyer, R. A. (2006). Sense-making, grief, and the experience of violent loss: toward a mediational model. *Death Studies*, 30, 403–428.
- Currier, J. M., Neimeyer, R. A., & Berman, J. S. (2008). The effectiveness of psychotherapeutic interventions for bereaved persons: a comprehensive quantitative review. *Psychological Bulletin*, 134, 648–661.
- Davis, C. G., Nolen-Hoeksema, S., & Larson, J. (1998). Making sense of loss and benefiting from the experience: two construals of meaning. *Journal of Personality and Social Psychology*, 75, 561–574.
- Field, N. P., Hart, D., & Horowitz, M. J. (1999). Representations of self and other in conjugal bereavement. *Journal of Social and Personal Relationships*, 16, 407–414.

- Field, N. P., & Sundin, E. C. (2001). Attachment style in adjustment to conjugal bereavement. *Journal of Social and Personal Relationships*, 18, 347–361.
- Fraleigh, R. C., Waller, N. G., & Brennan, K. A. (2000). An item-response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, 78, 350–365.
- House, J. S. (1981). *Work, stress and social support*. Reading, MA: Addison-Wesley.
- van der Houwen, K., Schut, H., van den Bout, J., Stroebe, M., & Stroebe, W. (2010). The efficacy of a brief internet-based self-help intervention for the bereaved. *Behaviour Research and Therapy*, 48, 359–367.
- van der Houwen, K., Stroebe, M., Stroebe, W., Schut, H., van den Bout, J., & Wijngaards-de Meij, L. (2010). Risk factors for bereavement outcome: a multivariate approach. *Death Studies*, 34, 195–220.
- Hox, J. (2002). *Multilevel analysis: techniques and applications*. Mahwah, NJ: Erlbaum.
- Jain, S., Shapiro, S. L., Swanick, S., Roesch, S. C., Mills, P. J., Bell, I., & Schwartz, G. E. R. (2007). A randomized controlled trial of mindfulness meditation versus relaxation training: effects on distress, positive states of mind, rumination, and distraction. *Annals of Behavioral Medicine*, 33, 11–21.
- John, O. P., & Srivastava, S. (1999). The big five trait taxonomy: history, measurement, and theoretical perspectives. In L. A. Pervin, & O. P. John (Eds.), *Handbook of personality: Theory and research* (pp. 102–138). New York: Guilford Press.
- Mackinnon, D. P. (2008). *Introduction to statistical mediation analysis*. New York: Lawrence Erlbaum.
- Meuser, T. M., & Marwit, S. J. (1999). An integrative model of personality, coping and appraisal for the prediction of grief involvement in adults. *Omega*, 40, 375–393.
- Mikulincer, M., & Shaver, P. R. (2008). An attachment perspective on bereavement. In M. Stroebe, R. Hansson, H. Schut, & W. Stroebe (Eds.), *Handbook of bereavement research and practice: 21st century perspectives* (pp. 87–112). Washington, DC: American Psychological Association.
- Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration of depressive episodes. *Journal of Abnormal Psychology*, 100, 569–582.
- Nolen-Hoeksema, S. (2001). Ruminative coping and adjustment to bereavement. In M. Stroebe, R. O. Hansson, W. Stroebe, & H. A. W. Schut (Eds.), *Handbook of bereavement research: Consequences, coping and care* (pp. 545–562). Washington, DC: American Psychological Association Press.
- Nolen-Hoeksema, S., Parker, L. E., & Larson, J. (1994). Ruminative coping with depressed mood following loss. *Journal of Personality and Social Psychology*, 67, 92–104.
- Nolen-Hoeksema, S., Wisco, B. E., & Lyubomirsky, S. (2008). Rethinking rumination. *Perspectives on Psychological Science*, 3, 400–424.
- Prigerson, H. G., Vanderwerker, L. C., & Maciejewski, P. K. (2008). A case for inclusion of prolonged grief disorder in DSM–V. In M. Stroebe, R. Hansson, H. Schut, & W. Stroebe (Eds.), *Handbook of bereavement research and practice: 21st century perspectives* (pp. 165–186). Washington, DC: American Psychological Association.
- Radloff, L. S. (1977). The CES-D scale: a self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385–401.
- Robinson, T., & Marwit, S. J. (2006). An investigation of the relationship of personality, coping, and grief intensity among bereaved mothers. *Death Studies*, 30, 677–696.
- Shear, K., Monk, T., Houck, P., Melhem, N., Frank, E., Reynolds, C., et al. (2007). An attachment-based model of complicated grief including the role of avoidance. *European Archives of Psychiatry and Clinical Neuroscience*, 257, 453–461.
- Stroebe, M., Folkman, S., Hansson, R. O., & Schut, H. (2006). The prediction of bereavement outcome: development of an integrative risk factor framework. *Social Science & Medicine*, 63, 2440–2451.
- Stroebe, M., Schut, H., & Stroebe, W. (2007). Health outcomes of bereavement. *Lancet*, 370, 1960–1973.
- Stroebe, W., Stroebe, M., Abakoumkin, G., & Schut, H. (1997). The role of loneliness and social support in adjustment to loss: a test of attachment versus stress theory. *Journal of Personality and Social Psychology*, 70, 1241–1249.
- Stroebe, M., Stroebe, W., Schut, H., Zech, E., & van den Bout, J. (2002). Does disclosure of emotions facilitate recovery from bereavement? Evidence from two prospective studies. *Journal of Consulting and Clinical Psychology*, 70, 169–178.
- Stroebe, W., Zech, E., Stroebe, M. S., & Abakoumkin, G. (2005). Does social support help in bereavement? *Journal of Social and Clinical Psychology*, 24, 1030–1050.
- Watkins, E. R. (2008). Constructive and unconstructive repetitive thought. *Psychological Bulletin*, 134, 163–206.
- Watson, D., Clark, L., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063–1070.
- Wolchik, S. A., Ma, Y., Tein, J.-Y., Sandler, I. N., & Ayers, T. S. (2008). Parentally bereaved children's grief: self-system beliefs as mediators of the relations between grief and stressors and caregiver–child relationship quality. *Death Studies*, 32, 597–620.
- Wolchik, S. A., Tein, J.-Y., Sandler, I. N., & Ayers, T. S. (2006). Stressors, quality of the child–caregiver relationship, and children's mental health problems after parental death: the mediating role of self-system beliefs. *Journal of Abnormal Child Psychology*, 34, 221–238.
- Wong, P. T. P., & Weiner, B. (1981). When people ask “why” questions, and the heuristics of attribution search. *Journal of Personality and Social Psychology*, 40, 906–918.