

# Avoidance Processes Mediate the Relationship Between Rumination and Symptoms of Complicated Grief and Depression Following Loss

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Ruminative coping has been associated with negative outcomes in bereavement. Rather than assuming it to be a problematic confrontation process, researchers have recently suggested rumination to be maladaptive through its links with avoidance processes. The main aim of this study was to examine, for the first time, whether the relationship between ruminative coping and symptoms of complicated grief and depression is mediated by avoidance processes (suppression, memory/experiential avoidance, behavioral avoidance, loss-reality avoidance). A sample of 282 adults (88% female, 12% male), bereaved on average 18 months previously, filled out three questionnaires at 6-month intervals. We assessed symptom levels, grief rumination, and trait rumination at baseline; avoidance processes after 6 months; and symptom levels after 12 months. When controlling for initial symptom levels, experiential avoidance mediated the link between grief rumination and complicated grief, and experiential avoidance and behavioral avoidance mediated the link between grief rumination and depression. Post hoc analyses showed suppression may also mediate the link between grief rumination and symptoms of complicated grief, but not depression. Loss-reality avoidance was no significant mediator of these relationships. This study provides initial evidence that rumination during bereavement increases and perpetuates symptoms of psychopathology, because it is linked with specific avoidance processes. Bereaved individuals with problematic grief and (chronic) rumination may benefit from therapy focused on countering avoidance tendencies.

*Keywords:* rumination, avoidance, suppression, grief, coping

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Rumination, broadly defined as recurrent, self-focused negative thinking about past negative experiences and/or negative mood (Michael, Halligan, Clark, & Ehlers, 2007) has been proposed as a risk factor for the development of depression (Nolen-Hoeksema, 2001; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008) and complicated grief (Boelen, van den Bout, & van den Hout, 2003; Stroebe et al., 2007) after the loss of a loved one. Indeed, ruminative thought<sup>1</sup> following bereavement is related to and predicts symptoms of depression, posttraumatic stress and complicated grief (e.g., Boelen, van den Bout, & van den Hout, 2003; Eisma et al., 2012; Nolen-Hoeksema, Parker, & Larson, 1994).

A frequently used framework to understand the negative effects of rumination after bereavement is Response Style Theory (RST) (Nolen-Hoeksema, 2001). According to RST, rumination has neg-

ative consequences after the loss of a loved one because it (a) repeatedly focuses the attention on negative emotions, making negative thoughts more accessible and salient; (b) interferes with problem solving, (c) impedes instrumental behavior; and (d) drives away social support. Although rumination was considered “the opposite of avoidance and denial/suppression” in early accounts of RST (Nolen-Hoeksema & Larson, 1999), many scientists have since argued that rumination may be similar to or strongly related to avoidance, which may (at least partly) account for the adverse consequences of ruminative thinking (Boelen, van den Hout, & van den Bout, 2006; Martell, Addis, & Jacobson, 2001; Nolen-Hoeksema et al., 2008; Stroebe et al., 2007; Wenzlaff & Luxton, 2003; Williams et al., 2007).

<sup>1</sup> Throughout this article multiple sources are cited, which use varying methods to assess ruminative thinking. Apart from differences in the content of rumination measures, an important difference between such instruments is if they aim to measure a general tendency to ruminate, such as the Rumination Reflection Questionnaire (Trapnell & Campbell, 1999), or if they aim to measure the amount of ruminative coping people engage in over a specific time-period, such as the adapted Ruminative Response Scale to measure daily rumination levels used by Dickson and colleagues (2012). In the current research we employ both types of rumination measures. The Rumination Reflection Questionnaire is used to assesses the general tendency to engage in ruminative thinking. The Utrecht Grief Rumination Scale (Eisma et al., 2012) assesses the extent to which individuals engaged in grief-specific rumination over the past month.

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Notably, [Stroebe and colleagues \(2007\)](#) proposed that ruminative thought after the loss of a loved one may serve an avoidant function. According to their Ruminative Avoidance Hypothesis (RAH), chronically ruminating about one's feelings, the loss event, and associated problems can serve as an "excuse" not to face up to the most painful aspects of a loss-experience. For instance, if the reality of the death may be too negative or emotionally overwhelming to confront, rumination can distract the bereaved individual from this reality. A similar line of reasoning is provided by [Boelen and colleagues \(2006\)](#), who proposed that bereaved individuals engage in continuous rumination about their own reactions and reasons why the loss occurred as a means to escape from having to admit the loss and the emotions linked with it. Chronic high levels of ruminative thought consequently cause grief complications, because they impede the acceptance of the loss ([Stroebe et al., 2007](#)) and block the integration of the loss with autobiographical memory about the self and the relationship with the lost person ([Boelen et al., 2006](#); cf. [Ehlers & Clark, 2000](#)). Thus, scientists claim that rumination after bereavement is more similar to avoidance than confrontation. Yet, no research to date has explicitly investigated this proposition. Therefore, in the current study the relationship between rumination and avoidance after the loss of a loved one will be examined. Moreover, because scientific literature contains more than one hypothesis regarding the link between rumination and avoidance, three different hypotheses will be discussed and their relative importance will be investigated.

The first hypothesis is that rumination could facilitate thought suppression, which we will refer to as the "suppression hypothesis." It is based on the notion that intentional suppression of an unwanted thought requires replacement of the unwanted material with other thoughts ([Wenzlaff & Wegner, 2000](#)). When a bereaved individual attempts to distract him or herself from painful thoughts about the reality of the loss, one would expect this person to think about topics unrelated to the loss, because this is likely to be much more effective than thinking about topics that are loss-related (cf. [Wenzlaff, Wegner, & Roper, 1988](#)). However, because loss-related material is much more accessible for people with severe grief symptoms ([Boelen, Huntjens, van Deursen, & van den Hout, 2010](#); [Maccallum & Bryant, 2010](#)), these individuals may use this loss-related material to distract themselves from the reality of the death. As such, ruminating about one's feelings and associated loss-related problems may contribute to suppression, which disrupts the grieving process. In support of this hypothesis, there is evidence for an association between rumination and suppression ([Kühn, Vanderhasselt, De Raedt, & Gallinat, 2012](#); [Liverant, Kamholz, Sloan, & Brown, 2011](#); [Wenzlaff & Luxton, 2003](#)) and cognitive avoidance ([Dickson, Ciesla, & Reily, 2012](#); [Moulds, Kandris, Starr, & Wong, 2007](#)).

The second hypothesis about the way in which rumination contributes to avoidance is through its influence on memory processes. This hypothesis will be referred to as the "memory hypothesis," because it is based on theories on overgeneral autobiographical memories (for reviews, see [Sumner, 2012](#); [Williams et al., 2007](#)). Since this hypothesis is complex, we discuss it in some detail, to clarify this second potential link between rumination and avoidance. People suffering from complicated grief generally report more overgeneral autobiographical memories in response to cue words in an autobiographical memory test, (AMT) ([Williams & Broadbent, 1986](#)). When asked to describe a specific event, they

often provide memories that describe a category of similar events (e.g., I used to have breakfast with my wife every morning), rather than something that happened at a specific time and place (e.g., I had the last breakfast with my wife on the first Monday morning of December). This less-specific retrieval style is thought to serve as a strategy to "functionally avoid" extreme negative affect. Retrieving memories of negative events (i.e., the death of a loved one) in less-specific ways is thought to generate less emotional distress during recall in comparison to retrieving such memories in more-specific ways. As a result, it is proposed that this less-specific retrieval style is less disruptive to the individual than a more-specific retrieval style, because the influence of potentially emotional material is dampened ([Conway & Pleydell-Pearce, 2000](#); [Williams et al., 2007](#)).

Crucially, one of several mechanisms thought to underlie overgeneral memory is called "capture and rumination." It is posited that individuals can remain at more general levels of memory representation if conceptual information activated during the early stages of memory retrieval is related to one's personal concerns and/or self-representations. If such information is highly elaborated and therefore easily activated, then individuals can be "captured" at this level. When this occurs, individuals are likely to stay focused on this conceptual information rather than accessing event-specific knowledge. Rumination, as a conceptual, and potentially chronic, self-focused thinking style, is hypothesized to increase the probability that overgeneral memories are retrieved. Specifically, rumination elaborates intermediate conceptual information in the autobiographical memory hierarchy, which increases the likelihood of being captured during retrieval and decreases the likelihood that bereaved individuals retrieve specific memories (cf. [Sumner, 2012](#); [Williams et al., 2007](#)). Taking mechanisms of functional avoidance and capture and rumination into account, it seems reasonable to assume that if chronic ruminative thinking increases overgeneral memory retrieval, it may be a mechanism through which bereaved individuals avoid (specific) highly emotional, loss-related memories.

In accordance with this memory hypothesis, the association between rumination and overgeneral memory has been well documented ([Sumner, 2012](#)). Moreover, both rumination and overgeneral memory have been associated with cognitive and experiential avoidance (i.e., the avoidance of internal experiences including memories) in nonbereaved groups (e.g., [Cribb, Moulds, & Carter, 2006](#); [Dickson et al., 2012](#); [Hermans, Defranc, Raes, Williams, & Eelen, 2005](#)). In a group of female bereaved war survivors, [Morina \(2012\)](#) similarly reported a positive association between experiential avoidance and rumination. However, an important challenge to this theory is that autobiographical memories of bereaved individuals related to the deceased and the loss appear to be "immune" to the reduced specificity effect ([Boelen et al., 2010](#); [Golden, Dalgleish, & Mackintosh, 2007](#)). For instance, using adjusted versions of the AMT, [Golden et al. \(2007\)](#) found that participants with complicated grief reported more-specific memories about the life of the deceased individual than about their own life or the life of a significant other. Despite these contradictory findings, the memory hypothesis provides an important perspective on the relationship between rumination and cognitive avoidance after a loss-experience, which warrants further research.

A third, yet fundamentally different proposition about the relationship between ruminative thought and avoidance is provided by

Nolen-Hoeksema et al. (2008), who adjusted their original view of rumination as a confrontational process to include a link with an avoidance process. Building on work of behavioral activation theorists (Ferster, 1973; Martell et al., 2001), they proposed a link between rumination and behavioral avoidance, which will be referred to as the “behavior avoidance hypothesis.” The basic idea of this hypothesis is that rumination helps individuals avoid the aversive environment that surrounds them by occupying attention and time. Furthermore, rumination serves to build a case that the individual is facing a hopelessly uncontrollable situation and that nothing can be done to overcome this. Rumination as such not only removes people from aversive situations, but also provides them with reasons for behavioral avoidance. As a consequence of a decreased participation in social, occupational, and recreational activities, access to experiences that run counter to negative beliefs about the self and life is blocked. This, in turn, fuels negative affect and ultimately depression (Martell et al., 2001). Because inactivity may also prevent mourners from gaining experiences in the absence of the deceased person, it could also interfere with integration of the loss into abstract knowledge about the self and the relationship with the lost person, contributing to stagnation of the grief process (Boelen et al., 2006). Surprisingly, no research has yet addressed the relationship between rumination, behavioral avoidance, and the development or persistence of depression and complicated grief in a bereaved sample. Sparse results from studies in nonclinical populations remain mixed. For instance, Moulds et al. (2007) reported positive associations between ruminative thought, behavioral avoidance, and depression, but behavioral avoidance failed to predict rumination in a sample of adolescents over a 7-day period (Dickson et al., 2012).

Summarizing the above, three avoidance processes are proposed to mediate the relationship between rumination and the development and persistence of psychopathology. First, according to the *suppression hypothesis*, continuous rumination about emotions and loss-related problems may facilitate suppression of thoughts about painful aspects of the reality of the loss and the emotions linked with it. Second, as stated in the *memory hypothesis*, rumi-

nation may elaborate intermediate conceptual information in the autobiographical memory hierarchy, thereby decreasing the likelihood of retrieving specific, highly emotional memories related to the loss. The consequence of both types of cognitive avoidance is that confrontation with the reality of the death is reduced, which interferes with the acceptance of the loss and integration of the loss in the autobiographical knowledge base, which ultimately contributes to grief complications. Third, the *behavioral avoidance hypothesis* holds that ruminative thought increases withdrawal from daily activities by occupying attention and time and by providing a rationale for behavioral inactivity. On the one hand, this perpetuates depression, because it blocks access to experiences that could challenge negative beliefs. On the other hand, it sustains grief complications, because it limits experiences in the absence of the deceased loved one, which could facilitate the grieving process.

Investigating these propositions is theoretically important, because it can illuminate the function of rumination. Furthermore, there are potential clinical implications. Because rumination may be a central factor in determining bereavement outcome, therapeutic interventions for people with high symptom levels of complicated grief could be targeted toward reducing ruminative thought. If rumination plays a role in behavioral avoidance, behavioral activation may be a logical therapeutic strategy to reduce these types of thought. However, if ruminative thought contributes to or is similar to cognitive avoidance, then strategies to confront this avoidance, such as exposure techniques, may be more appropriate.

Therefore, the main aim of this study was to examine, for the first time in a bereaved sample, whether avoidance prospectively mediates the relationship between rumination on the one hand, and symptoms of depression and complicated grief, on the other hand, and, if this is the case, a second aim is to determine the relative importance of each of three hypothesized avoidance processes as working mechanisms in the relationship between ruminative thought and psychopathology. Therefore, the relative contribution of three different types of avoidance to the mediation of the relation between rumination and symptoms of depression and complicated grief was examined in multiple mediation models (see Figure 1). In these models thought suppres-

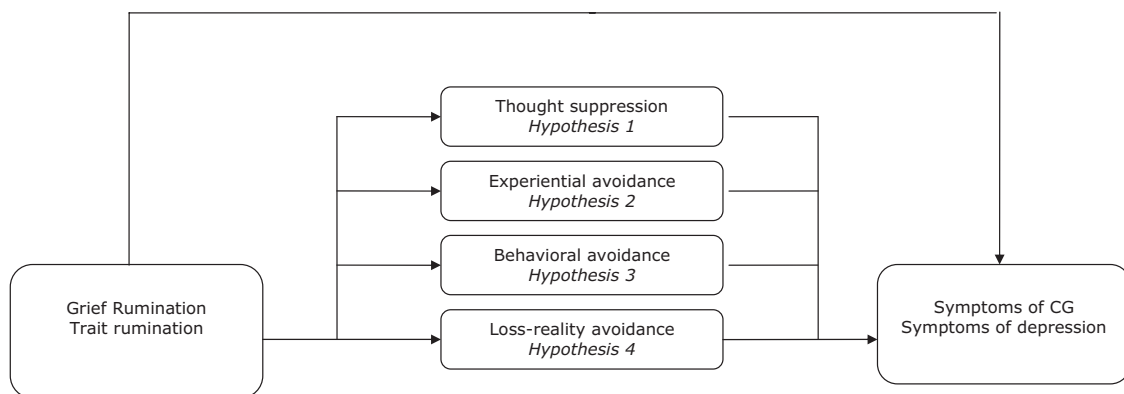


Figure 1. Proposed avoidance processes mediating the link between grief rumination and trait symptoms of complicated grief and depression. CG = Complicated Grief. We aimed to test four mediation models: (1) avoidance processes mediate the link between grief rumination and CG symptoms, (2) avoidance processes mediate the link between grief rumination and depressive symptoms, (3) avoidance processes mediate the link between trait rumination and CG symptoms, and (4) avoidance processes mediate the link between trait rumination and depressive symptoms. Analyses were controlled for baseline symptom levels.

sion was measured to test the suppression hypothesis, experiential avoidance (i.e., general avoidance of internal experiences, including memories) was measured to test the memory hypothesis, and behavioral avoidance was measured to test the behavioral avoidance hypothesis.

Finally, apart from testing the working mechanisms, a major aim of this study was to test the content specificity of the material that is avoided through rumination. As mentioned before, researchers have claimed that ruminative thought serves to avoid the most painful aspects of the loss experience and have suggested that the reality of the loss may be an important topic that bereaved individuals aim to avoid (Boelen et al., 2006; Stroebe et al., 2007; see also: Worden, 2003). To test this proposition, a fourth hypothesis was added: we expect anxious avoidance of the loss-reality to significantly mediate the relationship between rumination and psychopathology when added to the proposed mediation models. This fourth hypothesis will be referred to as the *loss-reality avoidance hypothesis*.

## Method

### Sample and Procedure

This study was performed in compliance with ethical regulations of the internal review board. All participants were recruited via the Internet through announcements on websites for online support groups for bereaved individuals in the Netherlands or advertisements on the content network of Google. Interested individuals could link through to a website specifically designed for the current project, where information was provided about the study. People who chose to participate could fill out their address online. Within a week after filling out their address they received an informed consent form and the first questionnaire. Second and third questionnaires were sent by post to participants after 6 and 12 months, respectively.

The sample consisted of 282 adults (12% male, 88% female) who had lost a first-degree relative in the past 3 years. On average, the loss had occurred approximately 18 months ( $M = 17.9$  months,  $SD = 9.5$ ) prior to participating in this study. The demographic and loss-related characteristics of this sample are depicted in Table 1. Of the 282 participants who filled out the first questionnaire (T1), 227 (80%) filled out the questionnaire after 6 months (T2) and 186 (66%) filled out the questionnaire after 1 year (T3). No differences were found on loss- and background variables or symptom levels of depression and complicated grief between drop-outs and people who participated at all three measurement moments.

### Measures

Three different questionnaires were used to assess specific constructs at the three time points. At the first time point, background variables, grief rumination, trait rumination, and depressive and complicated grief symptoms were measured. Six months later, thought suppression and experiential, behavioral and loss-reality avoidance were assessed. Finally, 12 months after the first measurement moment, symptoms of depression and complicated grief were measured *again*. The scales that were used are described below.

Table 1  
*Demographic and Loss-Related Characteristics of the Sample (N = 282)*

|  |             |
|--|-------------|
| Demographic variables                  |             |
| Gender <sup>a</sup>                    |             |
| Male                                   | 29 (10.3)   |
| Female                                 | 253 (89.7)  |
| Age in years <sup>b</sup>              | 49.9 (11.5) |
| Level of education <sup>a</sup>        |             |
| Primary school                         | 9 (3.2)     |
| Secondary school                       | 92 (32.6)   |
| Vocational school                      | 70 (24.8)   |
| Higher education (university)          | 107 (37.9)  |
| Other                                  | 4 (1.5)     |
| Loss-related variables                 |             |
| Deceased is <sup>a</sup>               |             |
| Partner                                | 119 (42.2)  |
| Child                                  | 55 (29.5)   |
| Parent                                 | 67 (23.8)   |
| Brother/sister                         | 41 (14.5)   |
| Cause of loss <sup>a</sup>             |             |
| Natural causes (e.g., illness)         | 234 (83.0)  |
| Accident                               | 27 (9.6)    |
| Suicide                                | 19 (6.7)    |
| Murder                                 | 2 (0.7)     |
| Loss was <sup>a</sup>                  |             |
| Expected                               | 98 (34.8)   |
| Unexpected                             | 164 (58.2)  |
| Different (i.e. both)                  | 20 (7.1)    |
| Time since loss in months <sup>b</sup> | 17.9 (9.5)  |

<sup>a</sup> Values are number of the sample with valid % in parentheses. <sup>b</sup> Values are mean with standard deviation in parentheses.

### Background Information

Characteristics of the participant (age, gender, and education level) and characteristics of the deceased and the loss (relationship with deceased, time since the loss, cause of death, and expectations about the death) were assessed with a self-constructed questionnaire.

### Grief Rumination

The Utrecht Grief Rumination Scale (UGRS) was used to measure grief-specific rumination, defined as recurrent, repetitive, and self-focused thoughts about the causes and consequences of the loss and related negative feelings (Eisma et al., 2012). It consists of 15 items that measure different aspects of grief rumination: rumination about injustice, meaning, personal reactions and reactions of others, and counterfactual thinking about the loss (e.g., "How often in the past month did you try to understand your feelings about the loss?", "How often in the past month did you analyze if you could have prevented the death?"). Participants indicate how frequently they have experienced certain thoughts in the past month on a 5-point scale ranging from *never* (1) to *very often* (5). In the current study, the internal consistency of the total UGRS,  $\alpha = .87$ , was good.

### Rumination

To examine if effects generalize across different types of rumination, a measure of trait ruminative thinking, defined as anxious, self-focused attention, was included: the rumination subscale of

the Rumination Reflection Questionnaire (RRQ; Trapnell & Campbell, 1999; Dutch translation: Luyckx et al., 2007). The questionnaire consists of 12 self-descriptive statements that tap a general tendency to ruminate (e.g., “I often reflect on episodes of my life I should no longer concern myself with,” “I often find myself reevaluating something that I have done”). A participant indicates to what extent these statements are applicable to them on a 5-point scale ranging from *strongly disagree* (1) to *strongly agree* (5). In the current sample, the rumination subscale of the RRQ showed a good internal consistency,  $\alpha = .87$ .

### Suppression

The White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994; Dutch translation: Muris, Merckelbach, & Horselenberg, 1996) was used to measure thought suppression, the active effort not to think about certain thoughts. The WBSI consists of 15 self-descriptive statements (e.g., “I always try to put problems out of my mind,” “I have thoughts I try to avoid”). A participant indicates to what extent he or she agrees with these statements on a 5-point scale that ranges from *strongly disagree* (1) to *strongly agree* (5). In the current sample the internal consistency of the WBSI was excellent,  $\alpha = .91$ .

### Experiential Avoidance

Experiential avoidance was measured using the Acceptance and Action Questionnaire–II (AAQ-II; Bond et al., 2011; Dutch translation: Jacobs, Kleen, De Groot, & A-Tjak, 2008). Experiential avoidance is defined as the attempt to alter the form, frequency, or situational sensitivity of difficult private events (i.e., thoughts, feelings, and physiological sensations). Example items are “It is OK if I remember something unpleasant” (reverse-scored) and “My painful memories prevent me from leading a fulfilling life.” The AAQ-II comprises 10 items with a 7-point response format and was designed as an updated version of the original nine-item AAQ (Hayes et al., 2004). The items of the AAQ were reverse-scored in this study, so that higher scores indicated more experiential avoidance, to facilitate interpretation of results. In this study the AAQ-II showed good internal consistency,  $\alpha = .89$ .

### Behavioral Avoidance and Loss-Reality Avoidance

The Depressive and Anxious Avoidance of Prolonged Grief Questionnaire (DAAPGQ; Boelen & van den Bout, 2010) was used to measure grief-specific avoidance processes. Five items assess behavioral avoidance, or inactivity after loss (e.g., “I avoid doing activities that used to bring me pleasure, because I feel unable to carry out these activities,” “I develop very few new activities since . . . died, because I feel unable to do so”). Four items tap avoidance of the loss-reality (e.g., “I avoid dwelling on painful thoughts that are connected to his or her death,” “I avoid to dwell on the fact that . . . is dead and will never return.”). Items are rated on 8-point scales ranging from *not at all true for me* (1) to *completely true for me* (8). In the current study the behavioral avoidance and loss-reality avoidance subscales yielded excellent and adequate internal consistencies, with  $\alpha$ s of .91 and .79, respectively.

### Symptoms of Complicated Grief

Complicated grief symptoms were measured with the Inventory of Complicated Grief-Revised (ICG-R; Prigerson & Jacobs, 2001; Dutch translation by Boelen, van den Bout, de Keijser, & Hoijtink, 2003). The Dutch version consists of 29 statements about the frequency and intensity of symptoms of complicated grief (e.g., “I feel my life is empty without the person who died,” “I feel myself longing for the person who died”). Participants indicate how often or how intensely they have experienced these symptoms on a 5-point scale. In the current study, five items of the ICG were removed before conducting the mediation analyses to control for potential content overlap between predictors, mediators, and outcomes. Two items were removed because they may overlap with behavioral avoidance (i.e., “I believe my grief has resulted in significant impairment in my social, occupational, or other areas of functioning,” “I think about the deceased so much that it can be hard for me to do the things that I normally do”). Three items were removed because they potentially overlap with grief rumination, specifically rumination about unfairness of the loss (i.e., “I have trouble accepting the death,” “I feel it is unfair that I should live while the deceased has died,” “I feel envious of others who have not lost someone close”). In the current study the internal consistency of the ICG was excellent,  $\alpha = .96$ .

### Symptoms of Depression

Depressive symptoms were measured with the depression subscale of the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983; Dutch translation by Spinhoven et al., 1997). The depression subscale of the HADS consists of seven statements about experiences that tap depressive symptoms (e.g., “I feel cheerful” [reverse scored], “I feel as if I am slowed down”). Participants indicated how often or to what extent they have had these experiences in the past week on 4-point scales. The depression subscale showed good internal consistency in this sample,  $\alpha = .89$ .

### Statistical Analyses

Prior to the mediation analyses, we examined the associations of background and loss-related variables at baseline (T1) with symptoms of depression and complicated grief after a year (T3), while controlling for symptom levels at T1. Using this procedure, no background and loss-related variables significantly predicted symptoms of psychopathology.

We examined if different types of avoidance processes (thought suppression, experiential, loss-reality avoidance, and behavioral avoidance) after 6 months (T2) mediated the relationship between baseline grief rumination (T1) and complicated grief after 12 months (T3), while controlling for baseline symptom levels. Next, similar analyses were conducted with depressive symptoms as the dependent variable (DV). Finally, in order to investigate if findings generalize across different types of rumination, both mediation analyses were planned to be repeated with trait rumination as the independent variable (IV).

In mediation analyses, it is assumed that the total effect of an IV on a DV, denoted as weight  $c$ , is composed of a direct effect of the IV on the DV (weight  $c'$ ) and the indirect effect of the IV on the

DV via the mediator M (i.e., the product of the effect of the IV on the M [a weight] and the effect of the M on the DV [b weight]). In case of multiple mediators, the total indirect effect (the summed a and b weights) as well as the unique effect of each individual mediator can be estimated (MacKinnon, Fairchild, & Fritz, 2007; Preacher & Hayes, 2008). Figure 1 shows a graphic representation of the mediation models that we tested.

Mediation analyses were conducted using the bootstrapping procedure for multiple mediators for SPSS developed by Preacher and Hayes (2008). Bootstrapping is a nonparametric resampling method that generates an empirical approximation of the sampling distribution of a statistic from the data and, as such, avoids the power problems associated with non-normality in the sampling distribution. The procedure provides point estimates and 95% confidence intervals for the total and individual indirect effects. The output provides three types of confidence intervals. In the present analyses, we used 5,000 bootstrap resamples and focused on the bias corrected and accelerated confidence interval. This is the most stringent test of mediation, with point estimates of indirect effects being considered significant (at  $p < .05$ ) if zero is not included in the interval.

## Results

### Preliminary Analyses

At baseline, 28 of 282 participants (10.0%) had total ICG-R scores above 90, a previously established threshold for clinically relevant scores of complicated grief (Boelen, van den Bout, de Keijser, & Hoijtink, 2003). However, 179 of 282 participants (63.6%) scored higher than 25 on the 19 items of the original ICG, a threshold at which individuals on average experienced significantly more impairments in social, general, physical, and mental health in comparison to nonclinically bereaved individuals (Prigerson et al., 1995). Furthermore, distributions of complicated grief severity were approximately normal and variability was large ( $M = 52.5$ ,  $SD = 25.6$ , Range = 3–112). Time since loss was also distributed approximately normal ( $M = 17.9$  months,  $SD = 9.5$ , Range = 1–42). Moreover, the association between time since loss and complicated grief symptoms was weak and nonsignificant,  $r(279) = -.08$ ,  $p = .18$ , suggesting meaningful individual differ-

ences in grief trajectories. Thus, the sample consisted of individuals with varying amounts of time since the loss and levels of grief at baseline ranging from approximately normal through more complicated forms. Means, standard deviations of rumination, avoidance, and symptom measures at each time point and correlations between these variables are depicted in Table 2.

### Mediation Analyses

As mentioned, we aimed to conduct four mediation analyses. However, of the four total effects ( $c$  paths) from each of the independent variables (grief rumination and trait rumination) on each of the dependent variables (complicated grief and depressive symptoms), the effects for trait rumination on complicated grief and depressive symptoms were not significant. Although there is some debate on this issue (for a discussion: MacKinnon, 2008), classic conceptualizations on mediation analysis hold that true mediation cannot occur in absence of a relationship between the IV and the DV (Baron & Kenny, 1986; Holmbeck, 1997). Therefore, only the two mediation models that used grief rumination as an independent variable are reported. All avoidance strategies (thought suppression, experiential avoidance, behavioral avoidance, loss-reality avoidance) were entered simultaneously in the mediation models so that each indirect effect was corrected for every other indirect effect.

As Table 3 shows, the relationship between grief rumination and complicated grief symptoms was fully mediated by experiential avoidance. By contrast, the link between grief rumination and depressive symptoms was fully mediated by experiential avoidance and behavioral avoidance. Thought suppression and loss-reality avoidance did not significantly mediate these relationships. Grief rumination significantly predicted thought suppression in the mediation model with the dependent variable complicated grief symptoms and both thought suppression and loss-reality avoidance in the mediation model predicting depressive symptoms (a paths). However, these avoidance processes failed to predict complicated grief and depressive symptoms (b paths).

### Magnitude of Mediation Effects

Partial correlation analyses were used to examine the relative size of the indirect effects. While controlling for baseline symptom

Table 2

Correlations Between Independent Variables, Mediator Variables and Dependent Variables, and Means and Standard Deviations

|                        | Trait rumination | Thought suppression | Experiential avoidance | Loss-reality avoidance | Behavioral avoidance | Complicated grief | Depression | <i>M</i> | <i>SD</i> |
|------------------------|------------------|---------------------|------------------------|------------------------|----------------------|-------------------|------------|----------|-----------|
| Grief rumination       | .34              | .36                 | .42                    | .32                    | .50                  | .65               | .48        | 42.0     | 12.0      |
| Trait rumination       | —                | .43                 | .47                    | .30                    | .26                  | .33               | .26        | 38.8     | 9.7       |
| Thought suppression    |                  | —                   | .52                    | .52                    | .42                  | .51               | .38        | 45.9     | 13.7      |
| Experiential avoidance |                  |                     | —                      | .38                    | .63                  | .64               | .60        | 31.4     | 12.3      |
| Loss-reality avoidance |                  |                     |                        | —                      | .46                  | .39               | .32        | 12.1     | 7.2       |
| Behavioral avoidance   |                  |                     |                        |                        | —                    | .74               | .68        | 18.2     | 10.6      |
| Complicated grief      |                  |                     |                        |                        |                      | —                 | .78        | 40.6     | 24.8      |
| Depression             |                  |                     |                        |                        |                      |                   | —          | 6.2      | 5.0       |

Note. Grief rumination and trait rumination were assessed at T1, thought suppression, experiential, behavioral and loss-reality avoidance were assessed at T2, symptoms of complicated grief and depression were measured at T3. The full ICG-R was used for the assessment of complicated grief symptoms in this correlation table. All correlations are significant at  $p < .001$ . T1 = filled out the first questionnaire; T2 = filled out the questionnaire after 6 months; T3 = filled out the questionnaire after 1 year.

Table 3

Summary of the Mediation Analyses in Which Avoidance Processes Mediate the Relationship Between Grief Rumination and Symptoms of Complicated Grief (Model 1) and Depression (Model 2) Corrected for Baseline Symptom Levels

| Model | Mediator               | Total effect (c) | Direct effect (c') | Total indirect effect ( $\Sigma a \times b$ ) | Unique indirect effect (a $\times$ b) | 95% CI      |
|-------|------------------------|------------------|--------------------|---|---------------------------------------|-------------|
| 1     | Experiential avoidance | 0.18**           | 0.06               | 0.11*   | 0.08*                                 | 0.02, 0.24  |
|       | Thought suppression    |                  |                    |   | 0.03                                  | 0.02, 0.18  |
|       | Behavioral avoidance   |                  |                    |   | 0.01                                  | -0.02, 0.07 |
|       | Loss-reality avoidance |                  |                    |   | 0.00                                  | -0.05, 0.01 |
| 2     | Experiential avoidance | 0.06*            | 0.01               | 0.05*   | 0.02*                                 | 0.02, 0.09  |
|       | Thought suppression    |                  |                    |   | -0.01                                 | 0.01, 0.05  |
|       | Behavioral avoidance   |                  |                    |   | 0.03*                                 | -0.03, 0.01 |
|       | Loss-reality avoidance |                  |                    |   | 0.00                                  | 0.01, 0.06  |

Note. CI = confidence interval. Significant at \*  $p < .05$ . \*\*  $p = .09$ .

levels, grief rumination explained 2.0% of the variance in complicated grief symptoms, 1.8% (80.0%) of which was accounted for by avoidance processes. Grief rumination also explained 3.1% of the variance in depressive symptoms, 3.0% (96.8%) of which was accounted for by avoidance processes.

Another method to assess the effect sizes of indirect effects was proposed by MacKinnon et al. (2007), who use the formula,  $1 - c'/c$ , to calculate the proportion of the effect of an IV on a DV that is accounted for by the mediators. Using this rule (possible values lie between 0 and 1), the effect sizes of avoidance processes mediating the link between grief rumination on the one hand and symptoms of complicated grief and depression on the other hand were .67 and .83, respectively.

### Post Hoc Mediation Analyses

As mentioned above, experiential avoidance (and behavioral avoidance), but not thought suppression or loss-reality avoidance, mediated the proposed relationships between ruminative thinking and symptoms of psychopathology if all avoidance processes were entered simultaneously in the multiple mediation analyses. However, experiential avoidance, broadly defined as avoidance of internal experiences (Hayes et al., 2004), potentially overlaps with avoidance of thoughts as assessed by the WBSI and the loss-reality avoidance as measured with the DAAPGQ, which primarily measures avoidance of thought content related to the loss-reality.

Therefore, in order to further investigate the importance of these avoidance processes all four mediation models were rerun using only thought suppression, loss-reality avoidance, and behavioral avoidance as mediator variables. In these revised mediation models (see Table 4) thought suppression fully mediated the relationship between grief rumination and complicated grief symptoms. However, the link between grief rumination and symptoms of depression was fully accounted for by behavioral avoidance.

### Magnitude of Post Hoc Mediation Effects

Effect sizes of mediation effects based on partial correlations were large, yet somewhat smaller than in previous analyses. Grief rumination explained 2.0% of the variance in complicated grief symptoms, of which 1.3% (65.0%) was explained by avoidance processes. Furthermore, grief rumination explained 3.1% of variance in depressive symptoms, of which avoidance processes accounted for 2.5% (80.6%). Effect sizes determined based on the method of MacKinnon and colleagues (2007) showed a similar pattern of results. The effect sizes for the indirect effects of avoidance processes on the relationship between grief rumination and complicated grief and depressive symptoms were .58 and .67, respectively.

### Discussion

In the current study, we tested whether grief rumination and trait rumination significantly predicted symptoms of complicated grief

Table 4

Summary of the Post-Hoc Mediation Analyses in Which Avoidance Processes Mediate the Relationship Between Grief Rumination and Symptoms of Complicated Grief (Model 1) and Depression (Model 2) Corrected for Baseline Symptom Levels

| Model | Mediator               | Total effect (c) | Direct effect (c') | Total indirect effect ( $\Sigma a \times b$ ) | Unique indirect effect (a $\times$ b) | 95% CI      |
|-------|------------------------|------------------|--------------------|---|---------------------------------------|-------------|
| 1     | Thought suppression    | 0.19**           | 0.11               | 0.07*   | 0.06*                                 | 0.00, 0.18  |
|       | Behavioral avoidance   |                  |                    |   | 0.03                                  | 0.01, 0.14  |
|       | Loss-reality avoidance |                  |                    |   | -0.01                                 | -0.03, 0.09 |
| 2     | Thought suppression    | 0.06*            | 0.02               | 0.04*   | 0.00                                  | -0.07, 0.01 |
|       | Behavioral avoidance   |                  |                    |   | 0.04*                                 | 0.01, 0.07  |
|       | Loss-reality avoidance |                  |                    |   | 0.00                                  | -0.02, 0.02 |

Note. Significant at \*  $p < .05$ . \*\*  $p = .07$ .

and depression over a period of 12 months and if these links could be accounted for by avoidance processes. Indeed, grief rumination and trait rumination were both associated with symptoms of psychopathology over a 12-month interval. However, after correction for baseline symptom levels, only grief rumination, but not trait rumination, predicted symptoms of complicated grief and depression. Consistent with our expectancies, avoidance processes did indeed mediate the relationships between grief rumination and symptom levels. Consequently, we investigated the relative importance of different avoidance processes in the mediation of the relationship between ruminative thought and symptoms of psychopathology, using multiple mediation analyses. An interesting pattern of results emerged.<sup>2</sup>

However, before we turn to these results, it is important to briefly elaborate on the finding that grief rumination, but not trait rumination, predicted symptom change. These results are broadly consistent with previous research in which grief-specific rumination, but not the general tendency to ruminate, predicted symptom change in complicated grief and depression over 6 months in a subclinically bereaved sample (Eisma et al., 2012). Two important differences between the measures used to assess grief rumination (UGRS) and trait rumination (RRQ) could potentially have contributed to this result. First, the UGRS measures ruminative thoughts that are particularly likely to occur after bereavement, such as thoughts about the causes and consequences of the loss (Eisma et al., 2012), rather than a general tendency to engage in ruminative coping. Indeed, the loss of a loved one, such as the loss of a child or partner, may be so difficult to come to terms with, that a person who, under normal circumstances, would not ruminate much, could repeatedly dwell on one's feelings and the causes and consequences of the loss in order to try to grasp what has happened (Tait & Silver, 1989). Second, the UGRS measures how much rumination a person has engaged in over the last month, rather than how much one usually ruminates. As such, it is likely to provide a more accurate approximation of the true levels of ruminative coping a bereaved person experiences at a particular point in time, thereby increasing its predictive power relative to the RRQ.

Turning next to our mediation hypotheses, a first conclusion is that the behavioral avoidance hypothesis of rumination was partly confirmed. Behavioral avoidance mediated the relationship between grief rumination and symptoms of depression, but not complicated grief. This suggests that chronically thinking about one's negative emotions and the causes and consequences of the loss may indeed increase withdrawal from social, occupational, and recreational activities, because it takes up time and provides reasons for inactivity. As a consequence, the bereaved person may have less time to engage in activities that could disconfirm negative thoughts, resulting in increased negative feelings and ultimately depressive symptoms (Martell et al., 2001; Nolen-Hoeksema et al., 2008). These results are in line with previous findings on the relationship between rumination, behavioral avoidance, and depression (Boelen, van den Bout, & van den Hout, 2003; Moulds et al., 2007) and illustrate that engaging in potentially meaningful and enjoyable activities may play a role in adjustment to bereavement (Shear, Boelen, & Neimeyer, 2011). However, the link between rumination and complicated grief symptoms was not mediated by behavioral avoidance. This seems to imply that the behavioral avoidance hypothesis of rumination

may be limited to explaining the development and persistence of depression after loss.

Second, in line with the memory hypothesis, experiential avoidance mediated the relationships between grief rumination on the one hand, and symptoms of complicated grief and depression on the other hand. Thus, rumination may indeed elaborate intermediate conceptual information in the autobiographical memory hierarchy, which consequently increases the likelihood of being captured during memory retrieval and decreases the likelihood that bereaved individuals retrieve specific highly emotional loss-related memories (cf. Sumner, 2012). This, in turn, interferes with the acceptance of the loss and increases grief complications.

However, these results should be interpreted with some caution. First, experiential avoidance is broadly defined as avoidance of internal experiences, which encompasses not only memories, but also thoughts (Hayes et al., 2004). Therefore, it may well overarch constructs such as thought suppression and anxious avoidance, which are predominantly focused on the avoidance of (specific) thought content. In line with this notion, thought suppression did indeed mediate relationships between grief rumination and symptoms of complicated grief (but not depressive symptoms) when experiential avoidance was excluded from the mediation models. This confirms the suppression hypothesis. Thus, ruminative thinking could also function as the thought content bereaved individuals use to distract themselves from more threatening thoughts, related to painful aspects of the loss, which complicates their grieving process (cf. Boelen et al., 2006). Future experimental research is needed to establish which cognitive avoidance process(es) (i.e., suppression, overgeneral memory retrieval) is/are facilitated by rumination and in how this contributes to the development and persistence of psychopathology after loss.

Lastly, somewhat surprisingly, the loss-reality avoidance hypothesis was disconfirmed. Although anxious avoidance of the reality of the loss was predicted by grief rumination and trait rumination (significant *a* paths), it failed to predict complicated grief symptoms and depressive symptoms (nonsignificant *b* paths), even when experiential avoidance was excluded from the mediation models. This result calls into question the specific proposition that rumination has adverse consequences because it serves to avoid the reality of the loss. However, it is important to note that although the RAH states that mourners may ruminate to distract themselves from what is "simply to emotionally overwhelming to confront," such as the reality of the loss, it also holds a different proposition. According to RAH, bereaved ruminators could also continuously go over the meaning of the loss and reasons why the loss occurred, because not doing so would make them feel disloyal to the deceased (Stroebe et al., 2007). In this case, ruminators may not be avoiding the reality of the loss per se, but rather confronting personally relevant, self-related cognitions linked with the loss. As such, anxious avoidance of the loss-reality as measured with the DAAPGQ likely covers only one component of the material bereaved ruminators may attempt to avoid. Finally, the finding that thought suppression but not loss-reality avoidance mediated the relationship between grief rumination and complicated grief symptoms

<sup>2</sup> Mediation analyses uncontrolled for symptom levels were also conducted. As these analyses provide more insight into the magnitude of associations between rumination, avoidance and symptom measures they are included as Online Supplemental Materials.



does not necessarily imply that the avoidance of the reality of the loss is irrelevant. Rather, it seems to indicate that a general tendency to suppress thoughts through rumination may be more maladaptive than exclusively avoiding thought content related to the loss-reality.

This study has a number of limitations. First, not unusually for bereavement research, the sample consisted mostly of bereaved women who were on average higher-educated than the general Dutch population. Although this potentially limits the generalizability of findings across groups (i.e., men and lower-educated individuals), we are not familiar with research that suggests that the processes under investigation are fundamentally different for such other groups. Second, because the aim of our study was to investigate underlying mechanisms, we purposely selected a sample with considerable variability in symptom severity, to prevent underestimation of correlations between symptom measures and cognitive and avoidance variables (cf. Edwards, 1976). However, it is possible that effects may be more pronounced in a bereaved sample with higher symptom levels. A third limitation is that this study is based on self-report questionnaires. Addressing the current research questions using different methods can strengthen conclusions regarding the link between rumination, avoidance and psychopathology. For instance, experimental research designs could clarify the relationship between rumination, complicated grief symptoms and avoidance of the reality of the loss. Another limitation pertains to the measurement of different types of avoidance. The questionnaire we used to measure depressive avoidance is based on subjective ratings of behavioral activity. In future studies, social withdrawal could also be assessed using more objective self-report measures, such as standardized activity diaries (Hopko & Mullane, 2008). Similarly, it would be advisable to use a version of the Autobiographical Memory Test (Williams & Broadbent, 1986) to further establish to what extent rumination plays a role in avoidance, by influencing the specificity of loss-related memories.

Despite these limitations, the current study adds to our understanding of the working mechanisms and consequences of ruminative thinking after the loss of a loved one. If future research corroborates these findings, this could have important clinical implications. Specifically, results suggest that rumination may serve as a cognitive and/or experiential avoidance strategy that also facilitates social withdrawal commonly observed in bereaved individuals, thereby fueling emotional problems after bereavement. As such, it hampers adjustment to the new reality that unfolds after the loss and prolongs the grieving process. This could imply that interventions aimed at people who experience grief complications and elevated levels of ruminative thought, should use a combination of exposure and behavioral activation techniques, embedded in cognitive-behavioral therapy, to lower rumination in order to facilitate the grieving process (cf. Shear et al., 2011).

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