Cognitive–Behavioral Variables Mediate the Impact of Violent Loss on Post-Loss Psychopathology

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Research has shown that violent losses lead to more severe emotional distress than do nonviolent losses. Little is known about the psychological mechanisms underlying the debilitating impact of violent loss. In the current study, the authors used self-reported data of 496 bereaved individuals, bereaved in the last 3 years, to examine the role of seven cognitive–behavioral variables in mediating the impact of violent loss: (a) a sense of "unreality" about the irreversibility of the separation, negative cognitions about (b) the self, (c) life, (d) the future, and (e) catastrophic misinterpretations of grief-reactions, and indices of (f) anxious avoidance and (g) depressive avoidance behavior. Outcomes showed that people bereaved by violent losses (due to homicide, suicide, or accident) had significantly higher symptom-levels of Prolonged Grief Disorder (PGD), posttraumatic stress disorder (PTSD), and depression than persons bereaved by nonviolent losses. Indices of *unrealness*, negative cognitions about the self, the future, catastrophic misinterpretations, and depressive avoidance were all significant independent mediators of the linkages between violent loss and symptom-levels of PGD and depression. Negative cognitions about the future, catastrophic misinterpretations, and depressive and anxious avoidance emerged as unique mediators of the association between violent loss and elevated PTSD severity. Findings underscore that cognitive–behavioral variables are a critical component of elevated emotional distress following violent loss.

Keywords: bereavement, violent loss, cognitions, avoidance

There is evidence that the death of a loved one can lead to debilitating emotional symptoms, including symptoms of depression, posttraumatic stress disorder (PTSD), and prolonged grief disorder (PGD)—a condition encompassing persistent separation distress, preoccupation with the loss, persistent disbelief, bitterness, and other reactions, causing significant impairments in functioning beyond the first 6 months after a loss (Prigerson et al., 2009; Shear et al., 2011). The loss having a violent cause is one of the most important risk factors for PGD and other psychopathology following loss—apart from low levels of social support, being a spouse or parent of the deceased, insecure attachment, and high neuroticism (Burke & Neimeyer, 2013; Kristensen, Weisæth, & Heir, 2012).

Theory and research has shed light on psychological mechanisms underlying the debilitating impact of violent losses. For instance, from the perspective of Janoff-Bulman's (1989) world assumptions theory, confrontation with violent (vs. nonviolent) losses shatters positive beliefs about the world and the self, leaving people with more negative beliefs that inflate emotional distress. In partial support of this notion, Mancini, Prati, and Black (2011) found negative self-views but not negative worldviews to mediate the impact of violent loss on PTSD, both cross-sectionally and longitudinally. From a constructivist perspective, it has been proposed that greater difficulties in finding meaning in a violent loss mediate elevated distress following violent loss; a notion that was supported in cross-sectional research (Currier, Holland, & Neimeyer, 2006).

Drawing from cognitive–behavioral theories of grief (e.g., Boelen, Van den Bout, & Van den Hout, 2006; Maccallum & Bryant, 2013; Shear & Shair, 2005), the current study sought to expand prior research by investigating the role of several cognitive–behavioral variables in mediating the impact of violent loss. Specifically, Boelen et al.'s (2006) model proposes that three processes account for the persistence of psychopathology following loss: (a) difficulties to integrate the loss with autobiographical knowledge, coinciding with a sense of uncertainty or ambivalence about the irreversibility of the separation (also termed *unrealness*); (b) negative cognitions about the loss and its sequelae, specifically negative cognitions about the self, life, and future and catastrophic misinterpretations of grief-reactions (e.g., "If I would confront the pain of this loss, I would lose control"); and (c) avoidant responses, specifically *anxious avoidance* of stimuli reminding of the loss (driven by the fear that confronting these reminders will be

unbearable) and *depressive avoidance* of activities that could foster adjustment (driven by the view that these activities are useless and unfulfilling). Research has confirmed that these cognitive–behavioral variables are associated with elevated PGD, depression, and PTSD both cross-sectionally and prospectively (e.g., Boelen, Van den Hout, & Van den Bout, 2013; Eisma et al., 2013; Van der Houwen, Stroebe, Schut, Stroebe, & Van den Bout, 2010).

Apart from accounting for the persistence of acute grief, it is assumed that persistent "unrealness," negative cognitions, and anxious and depressive avoidance mediate the impact of violent loss. That is, violent losses are more likely to generate distressing intrusive memories of the moments surrounding the death that are likely to block processing of the separation itself, inflating the persistence of a sense of unrealness (Process A). In addition, in keeping with world assumption and constructivist theories, violent deaths are likely to run a greater risk of leaving bereaved individuals with negative cognitions about the self, life, and the future, and the "bearableness" of their own grief reactions (Process B). Finally, it is conceivable that, compared with individuals confronted with nonviolent losses, individuals confronted with violent loss are more likely to engage in anxious avoidance of stimuli that remind of the loss (e.g., in order to avoid painful memories of the events leading up to the death) and depressive avoidance of social, recreational, and occupational activities that could foster recovery (e.g., in order to avoid stigmatizing or otherwise negative responses from people in the social environment; Process C).

The current study examined the proposed mediational role of unrealness, negative cognitions, and avoidance in affecting emotional responses to violent loss. In keeping with prior research in this area, losses that were due to suicide, homicide, or (domestic and motor vehicle) accidents were categorized as violent, whereas losses due to illness or unexpected medical causes (e.g., heart attack) were categorized as nonviolent (Currier et al., 2006; Kaltman & Bonanno, 2003; Mancini et al., 2011). Using self-reported data from a large group of bereaved individuals, we first examined differences in emotional symptoms between people confronted with violent versus nonviolent loss, expecting the former group to have higher symptom-levels of PGD, PTSD, and depression (*Hypothesis 1*). Second, we examined differences in indices of unrealness, negative cognitions about the self, life, the future, and catastrophic misinterpretations of grief reactions, and anxious and depressive avoidance between victims of violent and nonviolent loss. Although no prior research has examined the impact of violent loss on these indices, as theorized above, victims of violent loss were expected to have higher scores on these indices (*Hypothesis 2*). Finally, we examined the role of these seven cognitive–behavioral variables in mediating poorer outcome in response to violent loss. In so doing, we used the procedures for multiple mediation, developed by Preacher and Hayes (2008), that allowed to determine the mediational role of multiple mediators in a single model. We predicted that, when included in mediational models together, these cognitive–behavioral variables would mediate the impact of violent loss on elevated symptom-levels of PGD, PTSD, and depression (*Hypothesis 3*). We also explored which of the seven cognitive–behavioral variables had a unique mediating impact on symptom-levels when controlling for the shared variance between mediators.

Method

Participants and Procedure

Self-reported data were available from 496 bereaved individuals, all recruited in the context of a research program on cognitive–behavioral and memory processes in grief. Participants were recruited via professional and lay mental health care workers (e.g., grief counselors, therapists, clergy) who handed out questionnaires to mourners they came in contact with through their work-related or voluntary activities. The research program was approved by an institutional review board and written informed consent was obtained from all participants. For the current study, we selected data from 496 participants whose losses occurred fewer than 3 years earlier, from the total number of 712 individuals enrolled in the research program. The mean age of participants was 54.6 ($SD =$ 13.3) years. Most participants ($n = 372$; 75%) were women; 285 participants (87.5%) had had primary or secondary education only, whereas 211 participants (42.5%) had been to college or university. In total, 334 participants (67.3%) had lost a spouse/partner, 44 (8.9%) a child, and 118 (23.8%) some other loved one; 52 participants (10.5%) had lost a loved one due to a violent cause (i.e., accident, suicide, or homicide) and the other 444 participants (89.5%) lost a loved one due to a nonviolent cause (e.g., illness). Losses occurred on average 13.2 ($SD = 8.8$.) months earlier.

Symptom Measures

PGD scale. The PGD scale is based on the 19-item Inventory of Complicated Grief (Prigerson, Maciejewski, et al., 1995) and contains 11 of its items that represent criteria for PGD (Prigerson et al., 2009). Accordingly, items represent one separation distress symptom, nine cognitive and emotional symptoms (including difficulties accepting the loss, avoidance, bitterness/anger), and one functional impairment symptom. Participants rate how often symptoms occurred in the preceding month on 5-point scales (1 = *never*; 5 = *always*). In prior research (e.g., Boelen, Keijsers, & Van den Hout, 2012) scores on the PGD scale were significantly associated with concurrent depressive and anxious symptoms and impairments in functioning, attesting to the construct validity of the PGD scale. In the current sample, Cronbach's alpha was .90.

PTSD Symptom Scale–Self-Report version (PSS-SR). The PSS-SR is a 17-item measure of PTSD symptom severity. Respondents rate the frequency of symptoms on 4-point scales (0 = *not at all*; 4 = *five or more times per week/almost always*). The index event was defined as "the death of your loved one" (e.g., "How often did you have unpleasant dreams or nightmares about the death of your loved one?"). English (Foa, Riggs, Dancu, & Rothbaum, 1993) and Dutch versions (Engelhard, Arntz, & Van den Hout, 2007) have good psychometric properties. In the present sample, the alpha was .88.

Beck Depression Inventory (BDI). The BDI is a measure of depressive symptoms that contains 21 groups of four statements representing depressive symptoms at increasing levels of severity. The English (Beck, Steer, & Brown, 1996) and Dutch versions (Van der Does, 2002) have adequate psychometric properties. The alpha in this sample was .91.

Cognitive–Behavioral Variables

Experienced Unrealness Scale. This is a 5-item measure constructed by Boelen (2010). Items (e.g., "It feels unreal that . . . is gone forever," "Sometimes it feels as if . . . is just temporarily gone and will return again soon") are rated on 8-point scales (1 = *not at all true for me*; 8 = *completely true for me*). There is evidence from prior research that elevated scores on the Experienced Unrealness Scale coincide with elevated postloss distress and that unrealness is higher after sudden compared to nonsudden losses—findings attesting to the construct validity of the scale (Boelen, 2010). In the present sample, the scale's alpha was .89.

Grief Cognitions Questionnaire (GCQ) subscales: Self, Life, Future, and Catastrophic Misinterpretations. The GCQ is a 38-item measure of negative bereavement-related cognitions (Boelen & Lensvelt-Mulders, 2005). We used four of its subscales tapping negative cognitions about the Self (six items: α = .85, e.g., "Since . . . is dead, I am of no importance to anybody anymore"), Life (four items: α = .88; e.g., "My life has no purpose anymore, since . . . died"), Future (five items: α = .84; e.g., "In the future I will never become really happy anymore"), and Catastrophic Misinterpretations (four items: α = .86; e.g., "If I would fully realize what the death of . . . means, I would go crazy"), respectively. Items are rated on 6-point scales (1 = *disagree strongly*; 6 = *agree strongly*). Research has supported the factor structure of the GCQ and has shown that elevated GCQ scale scores are positively associated with pessimistic thinking and inversely associated with positive cognitions, attesting to the measure's validity (Boelen et al., 2013; Boelen & Lensvelt-Mulders, 2005).

Depressive and Anxious Avoidance in Prolonged Grief Questionnaire (DAAPGQ). The DAAPGQ is a 9-item measure, including four items tapping Anxious Avoidance (α = .77; "I avoid situations and places that confront me with the fact that . . . is dead and will never return") and five items tapping Depressive Avoidance(α = .90; "I avoid doing activities that used to bring me pleasure, because I feel unable to carry out these activities"). Items are rated on 8-point scales (1 = *not at all true for me;* 8 = *completely true for me*). Boelen and Van den Bout (2010) found evidence that items assessing anxious and depressive avoidance represent distinct factors and evidence supporting the concurrent validity (significant associations with indices of post-loss distress) and construct validity (significant associations with other measures tapping avoidance of loss-reminders). Eisma et al. (2013) showed that anxious and depressive avoidance were significantly associated with both cognitive and experiential avoidance, also attesting to the construct validity of the DAAOGQ.[1]

Statistical Analyses

First, we compared symptom-levels of PGD, PTSD, and depression and scores on the seven cognitive–behavioral variables between participants confronted with violent versus nonviolent loss to test *Hypothesis 1* and *Hypothesis 2*. Second, we explored to what extent symptom-levels of PGD, PTSD, and depression differed as a function of gender, age, education, time since the loss, and relationship with the deceased. Third, we consecutively examined whether the linkage between confrontation with violent loss versus nonviolent loss and PGD symptom severity was mediated by (a) a sense of unrealness (assessed with the Experienced Unrealness Scale); (b) negative cognitions about self, life, the future, and catastrophic misinterpretations (GCQ); (c) anxious and depressive avoidance (DAAPGQ); and (d) all these seven cognitive–behavioral variables together. Fourth, the same analyses were performed with PTSD severity as dependent variable. Fifth, the same analyses were performed with depression severity as dependent variable.

In mediational analyses, it is assumed that the total effect of an independent variable (IV) on a dependent variable (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 $a \times b$ weights) as well as the unique effect of each individual mediator can be estimated. Mediational analyses were conducted using the bootstrapping procedure for multiple mediators developed by Preacher and Hayes (2008). The procedure provides point estimates and 95% confidence intervals for the total and distinct indirect effects. 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

Table 1 shows the mean scores on all measures administered in this study. As shown, participants confronted with violent loss ($n = 52$) had significantly higher symptom levels of PGD, PTSD, and depression compared with participants confronted with nonviolent loss ($n = 444$). In the total sample ($N = 496$), 88 participants (17.7%) passed the threshold for PTSD caseness according to the *DSM–IV*-based (APA, 2000) scoring rule put forth by Brewin, Andrews, and Rose (2000), with symptom scores of at least two ("two to four times a week/half of the time") on at least one reexperiencing, three avoidance, and two hyperarousal symptoms. The percentage of PTSD caseness was significantly higher among those confronted with violent loss (18 of all 52 participants confronted with violent loss: 34.6%), compared with those confronted with nonviolent loss (70 of all 444 participants confronted with nonviolent loss: 15.8%; Fisher's exact test $p < .001$).

In the total sample ($N = 496$), 263 had minimal depression (BDI scores 0–13), 128 had mild depression (BDI scores 14–19), 77 had moderate depression (BDI scores 20–28), and 28 had severe depression (BDI scores 29–63). Percentages in the four severity

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[1] To allay concerns about the overlap between DAAPGQ depressive avoidance items and items of the BDI assessing depression, all 26 items from these two scales were subjected to an exploratory factor analysis with varimax rotation. This yielded a four-factor solution, explaining 54.9% variance. Notably, all 5 DAAPGQ items clustered together on one of the four factors (with loadings ranging from 0.69 to 0.78) together with BDI-items 4 ("Reduced pleasure", loading = .52) and 21 ("Diminished sexual interest", loading = .41) which also loaded highest on this factor. The other 19 BDI items loaded highest on one of the other three factors. This indicates that overlap between items of depressive avoidance and BDI items was small, and likely did not considerably affect the association between depressive avoidance and BDI scores.

Table 1
Symptoms and Cognitive–Behavioral Variables: Means and Standard Deviations by Loss Type

	Violent Loss			Nonviolent loss			
	M	SD	n	M	SD	n	t
Prolonged Grief (PGD scale)	34.2	7.5	52	28.1	8.9	442	4.78***
Posttraumatic Stress (PSS-SR)	20.4	9.3	52	14.4	8.3	443	4.88***
Depression (BDI)	19.0	9.8	52	12.9	8.3	444	4.97***
Unrealness (EUR)	29.7	8.7	52	25.2	10.8	442	3.45**
Negative cognitions about self (GCQ)	14.3	7.4	52	10.9	5.6	442	3.24**
Negative cognitions about life (GCQ)	10.9	5.6	52	9.1	5.3	442	2.32*
Negative cognitions about future (GCQ)	15.3	6.6	52	12.3	5.9	442	3.37***
Catastrophic Misinterpretations of Grief (GCQ)	14.3	5.3	52	10.4	5.4	442	4.95**
Anxious Avoidance Behaviour (DAAPGQ)	14.8	7.0	52	11.9	6.9	442	2.82**
Depressive Avoidance Behaviour (DAAPGQ)	24.5	8.3	52	19.0	10.2	442	4.38***

Note. BDI = Beck Depression Inventory; DAAPGQ = Depressive and Anxious Avoidance in Prolonged Grief Questionnaire; EUR = Experienced Unrealness Scale; GCQ = Grief Cognitions Questionnaire; PGD = Prolonged Grief Disorder; PSS-SR = PTSD Symptom Scale Self-Report version. Sample sizes in the nonviolent loss group differ due to occasional missing values.
* $p < .05$. ** $p < .01$. *** $p < .001$.

ranges differed significantly between participants confronted with violent loss and participants confronted with nonviolent loss ($\chi^2 = 19.9$, (3, $N = 49$) $p < .001$); the former group included fewer people with minimal depression (32.7% vs. 55.7%) and more people with mild (28.8% vs. 25.5%), moderate (21.2% vs. 14.9%), and severe depression (17.3% vs. 4.3%). Altogether, consistent with *Hypothesis 1*, people confronted with violent loss experienced more distress.

Table 1 also shows mean scores on the cognitive–behavioral variables. As predicted in *Hypothesis 2*, these variables differed significantly between groups with victims of violent loss experiencing more unrealness, more negative cognitions, and more anxious and depressive avoidance.

We also examined whether or not scores on the symptom measures differed as a function of gender, age, education (college or university vs. other education), time since loss, and relationship with the deceased person (categorized into death of partner/spouse, child, or other close person). Gender was linked with PTSD scores with higher scores among women ($M = 15.6$, $SD = 8.6$ vs. $M = 13.2$, $SD = 8.2$; $F[1, 493] = 7.35$, $p < .01$). Education affected PGD and PTSD scores with people having had primary/secondary education only reporting higher PGD scores ($M = 29.7$, $SD = 8.8$ vs. $M = 27.4$, $SD = 9.1$; $F[1, 492] = 7.75$, $p < .01$) and PTSD scores ($M = 15.8$, $SD = 8.7$ vs. $M = 14.0$, $SD = 8.4$; $F[1, 493] = 5.10$, $p < .05$). Finally, relationship affected symptom-levels of PGD, $F(2, 493) = 45.86$, PTSD, $F(2, 494) = 11.02$, and depression, $F(2, 495) = 14.72$, all ps $< .001$. Post hoc testing showed that PGD scores were ordered as follows: loss of a child ($M = 34.8$, $SD = 8.1$) > loss of a partner/spouse ($M = 30.0$, $SD = 8.1$) > loss of other relative ($M = 22.8$, $SD = 8.9$). Likewise, PTSD scores were ordered as follows: loss of a child ($M = 19.2$, $SD = 8.6$) > loss of a partner/spouse ($M = 15.4$, $SD = 8.1$) > loss of other relative ($M = 12.5$, $SD = 9.2$). BDI scores were ordered as follows: loss of child ($M = 17.2$, $SD = 9.0$) = loss of partner ($M = 14.2$, $SD = 8.5$) > loss another relative ($M = 10.1$, $SD = 8.2$).

None of the variables assessed demonstrated unacceptable levels of skew or kurtosis (i.e., none had positive standardized skew-

ness values that exceeded 2 or positive standardized kurtosis values that exceeded 7; e.g., Tabachnick & Fidell, 2007).

Mediation Analyses

Summaries of the mediation analyses with symptom-levels of PGD, PTSD, and depression as dependent variables are shown in Tables 2, 3, and 4, respectively. As predicted by *Hypothesis 1* (and also observed with the *t* tests reported in Table 1), total effects of violent loss on the three dependent variables (*c* paths reported in Tables 2, 3, and 4) were statistically significant. Thus, we went on to examine the meditational role of the cognitive–behavioral variables to test *Hypothesis 3*. As noted, with each dependent variable, four models were consecutively tested, in which unrealness (Model 1), the four negative cognitions (Model 2), anxious and depressive avoidance behavior (Model 3), and all seven cognitive–behavioral variables together (Model 4) served as mediating variables. To be conservative, we controlled for all sociodemographic and loss-related variables (i.e., age, gender, education, time since loss, and relationship to deceased) in all analyses.

Findings were fairly straightforward. First, unrealness was a significant mediator of the linkages of violent loss with levels of PGD, PTSD, and depression (Model 1 in Tables 2, 3, and 4). Second, the total indirect effects of the four cognitive variables (mediators in Model 2 in Tables 2, 3, and 4) were significant. This indicates that, when combined, the four negative cognitions mediated the effects of violent loss on PGD, PTSD, and depression severity scores. Confidence intervals for unique effects showed that all negative cognitions (except negative cognitions about life) were unique mediators of the linkage between violent loss and PGD, PTSD, and depression.

Third, the total indirect effects of anxious and depressive avoidance (mediators in Model 3 in Tables 2 through 4) were significant. Thus, when combined, both forms of avoidance significantly mediated the effect of violent loss on symptom-levels of PGD, PTSD, and depression. Confidence intervals for the unique effects showed that both depressive and anxious avoidance emerged as

Table 2

Summary of Mediational Analyses With Cognitive–behavioral Variables Mediating The Linkage of Violent Versus Nonviolent Loss With Prolonged Grief Disorder Severity

Model	Mediating variable(s)	Total effect (*c*)	Direct effect (*c'*)	Total indirect effect ($\Sigma\ a \times b$)	Unique indirect effects ($a \times b$)	Bias corrected and accelerated 95% CI	
						Lower	Upper
1		4.1768[a]	2.0522[a]	2.1246[a]			
	"Unrealness"				2.1246[a]	0.691	3.4920
2		4.2437[a]	0.9098	3.3339[a]			
	Negative Self				0.6059[a]	0.1580	1.3431
	Negative Life				0.3539	−0.0780	1.0563
	Negative Future				0.8646[a]	0.2740	1.7539
	Catastrophic Misinterpretations				1.5095[a]	0.6997	2.5129
3		4.1768[a]	1.3241	2.8527[a]			
	Anxious Avoidance				0.6878[a]	0.2248	1.3834
	Depressive Avoidance				2.1649[a]	0.6814	3.6357
4		4.2437[a]	0.3887	3.8455[a]			
	"Unrealness"				0.8386[a]	0.2813	1.4273
	Negative Self				0.3450[a]	0.0658	0.8548
	Negative Life				0.2654	−0.0536	0.8151
	Negative Future				0.3963[a]	0.0729	0.9620
	Catastrophic Misinterpretations				0.8555[a]	0.3592	1.5273
	Anxious Avoidance				0.1186	−0.1060	0.4440
	Depressive Avoidance				1.0260[a]	0.3595	1.7828

[a] Significant point estimate (*p* < .05).

unique mediators of the linkage between violent loss and outcomes.

Fourth, the analyses in which all seven cognitive–behavioral variables were included as mediators of PGD (Model 4, Table 2) showed that the total indirect effect of violent loss on PGD severity through these cognitive–behavioral variables was significant. Indices of unrealness, negative cognitions about the self, the future, and catastrophic misinterpretations, and depressive avoidance

were all significant independent mediators of the linkages between violent loss and PGD symptom severity. The total indirect effects of violent loss on PTSD severity through these cognitive–behavioral variables was also significant (Model 4, Table 3); negative cognitions about the future, catastrophic misinterpretations, and depressive and anxious avoidance emerged as independent mediators of the association between violent loss and PTSD severity. The total indirect effects of violent loss on depression

Table 3

Summary of Mediational Analyses With Cognitive–Behavioral Variables Mediating the Linkage of Violent Versus Nonviolent Loss With Posttraumatic Stress Severity

Model	Mediating variable(s)	Total effect (*c*)	Direct effect (*c'*)	Total indirect effect ($\Sigma\ a \times b$)	Unique indirect effects ($a \times b$)	Bias corrected and accelerated 95% CI	
						Lower	Upper
1		5.1425[a]	3.5720[a]	1.5705[a]			
	Unrealness				1.5705[a]	0.5468	2.6107
2		5.1425[a]	2.2364[a]	3.0122[a]			
	Negative Self				0.4870[a]	0.0871	1.2730
	Negative Life				0.0550	−0.1294	0.5303
	Negative Future				0.9948[a]	0.3128	2.0661
	Catastrophic Misinterpretations				1.4754[a]	0.6608	2.5625
3		5.1425[a]	2.2388[a]	2.9037[a]			
	Anxious Avoidance				0.9982[a]	0.3644	1.8670
	Depressive Avoidance				1.9054[a]	0.6861	3.2349
4		5.2277[a]	1.7055	3.5255[a]			
	"Unrealness"				0.1603	−0.0690	0.5378
	Negative Self				0.0942	−0.2237	0.5792
	Negative Life				0.0591	−0.0940	0.5662
	Negative Future				0.4399[a]	0.0795	1.1474
	Catastrophic Misinterpretations				0.6817[a]	0.2322	1.3620
	Anxious Avoidance				0.7312[a]	0.2650	1.4288
	Depressive Avoidance				1.3559[a]	0.4712	2.3943

[a] Significant point estimate (*p* < .05).

Table 4

Summary of Mediational Analyses With Cognitive–Behavioral Variables Mediating the Linkage of Violent Versus Nonviolent Loss With Depression Severity

Model	Mediating variable(s)	Total effect (c)	Direct effect (c')	Total indirect effect ($\Sigma\, a \times b$)	Unique indirect effects ($a \times b$)	Bias corrected and accelerated 95% CI	
						Lower	Upper
1		4.8880[a]	3.2368[a]	1.6512[a]			
	Unrealness				1.6512[a]	0.5150	2.6729
2		4.9080[a]	1.5199[a]	3.3881			
	Negative Self				1.0666[a]	0.3191	2.2329
	Negative Life				0.1423	−0.0393	0.7725
	Negative Future				1.1316[a]	0.3931	2.2267
	Catastrophic Misinterpretations				1.0476[a]	0.4503	1.8719
3		4.8880[a]	2.3040[a]	2.5840[a]			
	Anxious Avoidance				0.3327[a]	0.0072	1.0518
	Depressive Avoidance				2.2513[a]	0.8037	3.7313
4		4.8906[a]	1.2320	3.6587[a]			
	"Unrealness"				0.2701[a]	0.0571	0.6439
	Negative Self				0.8349[a]	0.2488	1.8218
	Negative Life				0.0495	−0.1148	0.5975
	Negative Future				0.7758[a]	0.2498	1.6411
	Catastrophic Misinterpretations				0.6165[a]	0.1562	1.2792
	Anxious Avoidance				−0.1175	−0.5563	0.2582
	Depressive Avoidance				1.2294[a]	0.4418	2.1316

[a] Significant point estimate ($p < .05$).

severity through these cognitive–behavioral variables was also significant (Model 4, Table 4); indices of unrealness, negative cognitions about the self, the future, and catastrophic misinterpretations, and depressive avoidance behavior were all significant independent mediators of the linkages between violent loss and depression severity.[2]

Additional Analyses With Composite Psychopathology Score

As expected, there were significant associations between scores on the symptom measures: the correlation of PGD symptom severity with PTSD severity was .78 and with depression severity was .77, and the correlation between PTSD and depression severity was .76 (ps < .001). Given the strength of these associations, it was deemed relevant to examine the degree to which the cognitive–behavioral variables mediated the impact of violent loss on a composite psychopathology score. Accordingly, we calculated a weighted total score based on all items included in the symptom measures of PGD, PTSD, and depression. Then we conducted additional mediational analyses in which unrealness, the four cognitions, the two indices of avoidance, and all seven cognitive–behavioral variables together were consecutively included as mediators of the effect of violent loss on this composite measure. Outcomes (depicted in Table 5) showed that, independently, unrealness (Model 1), the four cognitive variables (Model 2), and two indices of avoidance (Model 3) mediated the effect of violent loss on this composite measure. Outcomes of Model 4 showed that this effect was fully mediated by the seven cognitive–behavioral variables when these were entered to the mediation model together. Confidence intervals for unique effects showed that all cognitive–behavioral variables except negative cognitions about life and anxious avoidance were unique mediators of the

linkage between violent loss and the composite psychopathology measure.

Magnitude of Mediation Effects

To obtain further information about the magnitude of the meditation effect, regression analyses predicting symptom scores were conducted. These showed that, over and above the other sociodemographic and loss-related variables we assessed, exposure to violent loss (vs. other losses) explained 2.5% of the variance in PGD scores, 3.5% of the variance in PTSD scores, and 3.6% of the variance in depression scores (all ps < .001). When the variance explained by all seven cognitive–behavioral variables was also controlled, violent loss explained 0.1% of the variance in PGD scores ($p = .23$), 0.4% of the variance in PTSD scores ($p < .05$), and 0.3% of the variance in depression scores ($p < .05$).

Discussion

The current study sought to replicate prior research findings showing that violent losses are more distressing than nonviolent losses (Burke & Neimeyer, 2013) by using data from a large sample of bereaved individuals confronted with loss in the previous three years. In addition, we aimed to enhance knowledge about the psychological mechanisms underlying elevated emotional dis-

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[2] The measure of PTSD symptoms include two items tapping persistent avoidance of stimuli associated with the loss, representing criteria C1 and C2 in *DSM–IV* (APA, 2000) and DSM-5 (APA, 2013) criteria for PTSD. These items have some content overlap with items of the DAAPGQ tapping "anxious avoidance". However, outcomes of the analyses with PTSD severity as dependent variable (summarized in Table 3) were similar when these two items were removed from the PSS-SR.

Table 5
Summary of Mediational Analyses With Cognitive–behavioral Variables Mediating the Linkage of Violent Versus Nonviolent Loss With Psychopathology Composite Score

Model	Mediating variable(s)	Total effect (c)	Direct effect (c')	Total indirect effect ($\Sigma\ a \times b$)	Unique indirect effects ($a \times b$)	Bias corrected and accelerated 95% CI Lower	Upper
1		7.9706[a]	5.0558[a]	2.9147[a]			
	Unrealness				2.9147[a]	0.5746	5.1547
2		7.9031[a]	2.9083[a]	4.9948			
	Negative Self				1.2695[a]	0.3272	2.7161
	Negative Life				0.1957	−0.2052	1.0269
	Negative Future				1.3221[a]	−0.0434	2.9032
	Catastrophic Misinterpretations				2.2076[a]	0.7818	3.8690
3		7.9706[a]	3.3971[a]	4.5735[a]			
	Anxious Avoidance				3.5431[a]	0.7071	6.3062
	Depressive Avoidance				1.0304[a]	0.3129	2.1234
4		7.9085[a]	2.1126	5.7960[a]			
	"Unrealness"				0.7793[a]	0.1923	1.5556
	Negative Self				0.7090[a]	0.1377	1.7954
	Negative Life				0.0763	−0.1099	0.7571
	Negative Future				0.8283[a]	0.0206	1.9345
	Catastrophic Misinterpretations				1.3542[a]	0.4685	2.5441
	Anxious Avoidance				0.0420	−0.3672	0.5318
	Depressive Avoidance				2.0068[a]	0.4077	3.7147

[a] Significant point estimate ($p < .05$).

tress following violent losses. Drawing from cognitive–behavioral theories (e.g., Boelen et al., 2006; Maccallum & Bryant, 2013; Shear & Shair, 2005), we predicted that confrontation with violent loss would be associated with an increased sense of unrealness about the loss, increased endorsement of negative cognitions related to different themes, and greater urges to engage in anxious and depressive avoidance behaviors.

Our findings confirmed that people confronted with a violent loss indeed experienced more severe emotional distress, compared with those confronted with nonviolent loss, with significantly higher symptom-levels of PGD, PTSD, and depression being reported by the former group. This accords with prior research pointing at the adverse effects of violent loss (Kristensen et al., 2012). Moreover, in separate sets of mediational analyses these associations were found to be mediated by (a) a sense of unrealness about the irreversibility of the loss; (b) negative cognitions about life, the future, and catastrophic misinterpretations of grief-reactions; (c) and anxious and depressive avoidance behaviors. These findings are in line with prior evidence that cognitive processes mediate the impact of violent loss on post-loss psychopathology (Currier et al., 2006; Mancini et al., 2011). Further, our results extend this prior work by suggesting that the damaging impact of violent loss is also mediated by an elevated sense of unrealness about the separation from the deceased loved one (cf. Boelen, 2010) and increased anxious avoidance of loss-related stimuli and depressive avoidance of activities that could foster adjustment (cf. Eisma et al., 2013).

The mediational analyses in which all seven cognitive–behavioral variables were included together revealed several notable findings. Indices of unrealness, negative cognitions about the self, the future, catastrophic misinterpretations, and depressive avoidance (but not negative cognitions about life and anxious avoidance) were all significant independent mediators of the link-

ages between violent loss and symptom levels of PGD and depression, as well as the composite measure of loss-related psychopathology. These findings support a key prediction from Boelen et al.'s (2006) cognitive–behavioral model that its three distinguishable processes of insufficient integration, negative cognitions, and avoidance behaviors independently all exert a mediating influence on emotional distress following violent loss. That negative cognitions about life (e.g., "My life is meaningless and useless without the lost person") did not emerge as a unique mediator accords with Mancini et al.'s (2011) study in which beliefs about the meaningfulness/meaninglessness of life also did not mediate the emotional impact of violent loss. The finding that depressive avoidance but not anxious avoidance emerged as a unique mediator in the models predicting PGD, depression, and the composite psychopathology score suggests that difficulties to continue usual roles and activities that could foster adjustment is a more important mechanism of dysfunction in response to violent loss than fear to confront loss-related stimuli.

The analyses with PTSD severity as dependent variable showed that negative cognitions about the future, catastrophic misinterpretations, and depressive and anxious avoidance (but not unrealness, and negative cognition about the self and life) emerged as unique mediators of the association between violent loss and elevated PTSD severity. These findings indicate that a combination of pessimism and withdrawal on the one hand, and the fear of one's grief reactions and avoidance of loss-related stimuli on the other hand, are possible mechanisms of elevated PTSD symptoms after violent loss. The mediational contribution of the cognitive–behavioral variables was considerable, with these variables completely mediating the impact of violent loss on symptom levels of PGD and partially mediating its impact on symptom-levels of PTSD and depression.

This study has several limitations that are important to address. First, the cross-sectional nature of this study precludes conclusions about causality. Although the present findings are in line with the notion of mediation, conclusions must remain tentative pending replication of the present findings in prospective studies. Second, because all data were based on self-report, shared method variance may have inflated correlations between dependent and independent variables. Third, the current sample included a relatively large number of bereaved widows; although sociodemographic and loss-related variables were controlled for in the mediation analyses, caution should be applied in generalizing the current study findings. A final caveat is that cause of loss explained just a small amount of variance in symptom levels of PGD, PTSD, and depression—namely, 2.5%, 3.5%, and 3.6%, respectively. This is not totally unexpected in light of prior research; for instance, Mancini et al. (2011) found violent loss to explain 5% of variance PTSD and 7% of variance in depression, assessed approximately 4 months post-loss. Currier et al. (2006) found the violent nature of the death to explain 5.5% of variance in PGD severity, maximally two years post-loss. Thus, although exposure to violent loss poses a greater risk for postloss psychopathology than nonviolent loss (Kristensen et al., 2012) this effect may be small. However, the current as well as Mancini et al.'s and Currier et al.'s studies relied on people exposed to suicide, homicide or accidental losses; it is possible that more severe levels of distress are observed among people confronted with disaster losses or war or military losses (cf. Morina, Von Lersner, & Prigerson, 2011); it would be useful to further examine the impact of violent loss among more diverse traumatically bereaved samples.

Notwithstanding these considerations, the current findings extend prior work by providing further evidence that violent loss leads to elevated distress compared to nonviolent losses and providing preliminary evidence that cognitive–behavioral variables mediate this association. Pending replication, the current findings bear clinical implications. For instance, they underscore the importance of addressing negative cognitions and avoidance in the treatment of emotional distress following violent loss. Several studies have supported the positive effects of applying such interventions (Boelen, De Keijser, Van den Hout, & Van den Bout, 2007; Shear, Frank, Houck, & Reynolds, 2005). That depressive avoidance was a unique mediator of the linkage between violent loss and symptoms of PGD, PTSD, and depression suggests that behavioral activation may well be a useful intervention in the treatment of these symptoms. Importantly, there is preliminary evidence that this intervention is indeed effective in alleviating distress following loss (Papa, Sewell, Garrison-Diehn, & Rummel, 2013).

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