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Restoration-oriented stressors of bereavement

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ABSTRACT

Background and objectives: The Dual Process Model of Coping with Bereavement holds that bereaved people who respond flexibly to loss-oriented stressors (i.e., relating to the loss; to the deceased person) and restoration-oriented stressors (i.e., secondary to loss; daily-life changes, taking on new roles) adapt better to bereavement. Despite growing interest in the Dual Process Model, systematic analyses of the prevalence, characteristics, and correlates of restoration-oriented stressors are lacking. Therefore, we aimed to chart restoration-oriented stressors and their relationship with post-loss adaptation.

Design and methods: A community sample of 181 bereaved adults (63% women) completed the 20-item expert-constructed Restoration-Oriented Stressors Inventory (ROSI) and questionnaires assessing background characteristics, worry, and prolonged grief and depression symptoms.

Results: Main findings were that younger people, and those who lost a parent, partner, or child (vs. other relationship) experienced more restoration-oriented stressors and appraised these as more stressful. Stressors' perceived stressfulness, but not their quantity, related positively to worry. Perceived stressfulness predicted prolonged grief and depression symptoms beyond background characteristics, worry, and the number of stressors.

Conclusion: Restoration-oriented stressors and their appraisal vary and relate to coping and post-loss mental health. Future research should clarify temporal interrelations between stressors, coping mechanisms, and outcomes.

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Dual Process Model; restoration-orientation; secondary stressors; life changes; worry; complicated grief

Introduction

Across recent decades, bereavement researchers have examined how bereaved people come to terms with the loss of a close person, what precisely they have to deal with, and why some adapt relatively well whereas others have difficulty adjusting to their loss. Theoretical models have been proposed to provide guidelines, postulating (mal)adaptive ways of coping. The Dual Process Model of Coping with Bereavement (Stroebe & Schut, 1999, 2010) was developed based on prior models to contribute to this endeavor (Stroebe et al., 2017).

The Dual Process Model holds that bereaved people need to cope with (i.e., employ strategies to master, minimize, or tolerate) two types of stressors after bereavement (see Figure 1). First, there are loss-oriented stressors, stressful experiences relating to the death of the close person him- or herself.

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The Dual Process Model of Coping with Bereavement Stroebe & Schut (1999)

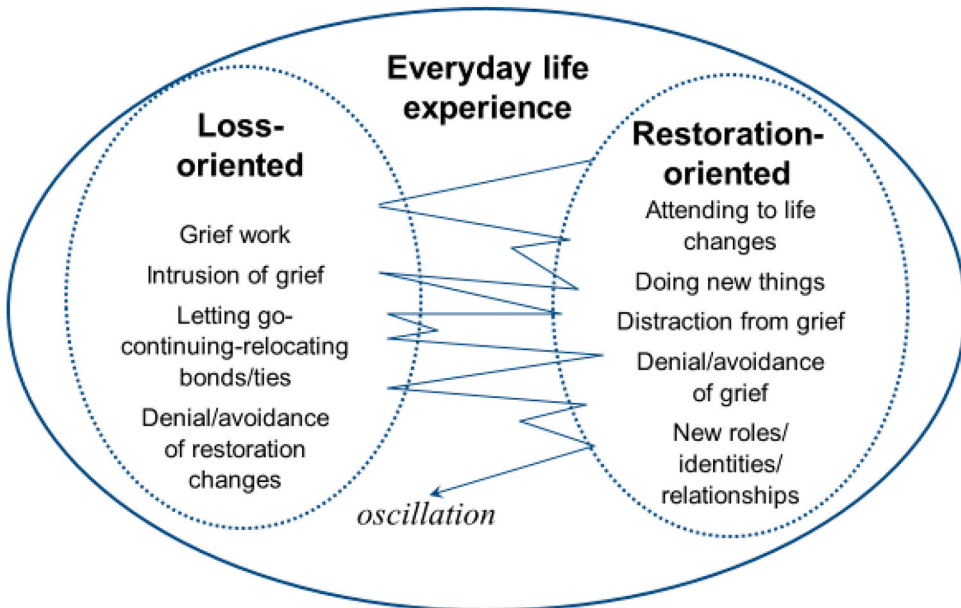


Figure 1. The dual process model of coping with bereavement (Stroebe & Schut, 1999).

For example, the bereaved person may dwell persistently on events before, leading up to, and immediately after the death event, trying to focus on and come to terms with the loss. This loss-oriented feature is similar to those identified as part of grief in other models, such as attachment-based models (e.g., Shear et al., 2007), and is reflected in grief symptom inventories, in so far as items capture orientation toward the deceased person (e.g., yearning, preoccupation, Prigerson & Jacobs, 2001).

Second, bereaved people experience restoration-oriented stressors. That is, bereaved persons have to deal with stressful matters that come about as a (secondary) consequence of the loss, which cause additional distress. This covers what might be considered readjustment (e.g., intrapersonal: new roles, tasks, activities, and life-goals; interpersonal: family conflict, coping difficulties of family members), reorganization (e.g., alterations in living arrangements, employment changes) and regulation (e.g., practical issues relating to the funeral; other practical issues such as closing contracts, legal affairs, contact with the media). As such, restoration-oriented stressors include a range of experiences. The inclusion of restoration-oriented stressors is a central, distinguishing feature of the Dual Process Model.

Uniquely within the Dual Process Model, flexible oscillation between coping with loss-oriented stressors and restoration-oriented stressors represents an adaptive response to bereavement. One cannot attend simultaneously to loss-oriented and restoration-oriented stressors, yet dealing with both is postulated as necessary. Therefore, shifting attention from the loss-orientation to the restoration-orientation and vice versa (i.e., oscillation), rather than "getting stuck" in the one or other domain is called for. Furthermore, in the case where there are many restoration-oriented and/or loss-oriented stressors, the bereaved person may experience *overload*: there is simply too much to handle, leading to difficulties coming to terms with the loss (Stroebe & Schut, 2016).

There is need for further empirical confirmation of the role of Dual Process Model parameters in general and restoration-oriented stressors in particular (for a review, Fiore, 2019). So far, two relevant

lines of research have shed light on restoration-oriented stressors. First, the concept has been operationalized in questionnaires in survey research, mostly to examine the relationship of coping strategies and post-loss psychological adjustment. Second, some intervention programs have included restoration-oriented tasks in their protocols, enabling examination of the “added value” of including these. We illustrate the main findings from these questionnaire and intervention studies next.

The scope of survey research on the Dual Process Model to date has been limited. Following cognitive stress theory (Folkman, 2001), studies could systematically examine the number of restoration-oriented stressors, appraisals of their stressfulness, coping strategies to deal with these stressors, and their interrelations with mental health outcomes. However, studies to date have only shed light on some of these elements and their associations. To start with stressors: Ryckebosch-Dayez et al. (2016) catalogued the frequency and types of loss-oriented and restoration-oriented stressors reported in diaries over a week, 1 year after bereavement. However, they did not systematically establish relationships between these stressors, coping strategies, and grief outcomes. Caserta and Lund (2007) developed a questionnaire, the Inventory of Daily Widowed Life (IDWL), to measure Dual Process Model parameters. Their restoration-orientation subscale covers a range of activities and restoration-related issues. However, their measure was not restricted to establishing stressful life-changes after bereavement, but also broadly covered restoration-oriented coping (cf. Dual Coping Inventory, DCI, Wijngaards et al., 2008).

Turning to coping and outcomes, Caserta and Lund (2007) showed that more restoration-oriented coping is associated with lower grief and depression symptomatology. Similarly, in studies using the IDWL and the DCI, a stronger focus on restoration-oriented coping related to lower prolonged grief levels (e.g., Lundorff et al., 2019; Tang & Chow, 2017). Within cognitive-behavioral models of prolonged grief, the construct of depressive avoidance (i.e., behavioral avoidance of social, occupational, and recreational activities) is considered to reflect an inability to engage in restoration-oriented coping (Boelen et al., 2006). Accordingly, depressive avoidance relates to more severe mental health outcomes concurrently and longitudinally (e.g., Boelen & Bout, 2013; Boelen & Eisma, 2015; for a review: Eisma & Stroebe, 2021). Additionally, some authors have created lists of post-loss activities which may be indicative of restoration (e.g., visiting friends, engaging in hobbies, work) and found negative associations between engaging in such activities and well-being and prolonged grief symptoms (e.g., Monk et al., 2006; Stahl & Schulz, 2018; Richardson, 2006, 2010). Generally, these studies suggest that coping effectively with specific restoration-oriented stressors is associated with better post-loss adjustment.

Intervention studies provide further support for the importance of coping with restoration-oriented stressors in psychological adaptation to bereavement (for a review: Fiore, 2019). For example, Shear et al.'s (2005, 2014) evidence-based complicated grief treatment is based on the Dual Process Model and includes a focus on tasks related to both loss-oriented and restoration-oriented coping. More recently, Chow et al. (2018) demonstrated that including tasks directed toward coping with restoration-oriented stressors was associated with more improvement than when an intervention focused only on coping with loss-oriented stressors. Nam (2017) showed that a restoration-oriented intervention (based on self-care in bereavement), was more effective than psycho-education. Relatedly, other studies have shown that systematically increasing the number of valued activities through behavioral activation reduces post-loss mental health problems (e.g., Papa et al., 2013; Eisma et al., 2015). Together, this research complements survey research by showing that addressing restoration-oriented coping in treatment facilitates healthy adaptation to bereavement. Nevertheless, the range and appraisal of experienced restoration-oriented stressors and their relation with specific coping strategies and grief complications remain largely uncharted. Developing this knowledge base could facilitate the development of more effective interventions to facilitate coping with restoration-oriented stressors.

The way that bereaved people cope with restoration-stressors and associated emotions could play a role in how stressors affect post-loss mental health. One emotion regulation strategy proposed to be specifically associated with restoration-oriented stressors is worry (i.e., predominantly

verbal thinking focused on uncertain future events with a potential negative outcome; Borkovec et al., 1998). Eisma et al. (2017) have argued that worry after loss is elicited by the uncertain situations that may arise because of the loss (i.e., restoration-oriented stressors) and focuses on them (e.g., people may worry about how family members cope with the loss). Worry, in turn, may exacerbate distress, for example, because it reduces the accessibility of loss-related memories and interferes with emotional processing (cf. Borkovec et al., 1998). Indeed, worry predicts worsening of prolonged grief symptoms over time (Eisma et al., 2017), and cognitive avoidance has been shown to partially mediate the relationship between worry and prolonged grief symptoms (Eisma et al., 2020a).

The present investigation

In summary, it is as yet unclear which restoration-oriented stressors bereaved people commonly encounter, how they are appraised, and how this relates to coping and post-loss mental health. Their characteristics, correlates, and associations with health outcomes therefore require further investigation. Uniquely, we set out to systematically chart the occurrence of frequently encountered restoration-oriented stressors and their appraisal within a community sample of bereaved people. Additionally, we explored how experiencing restoration-oriented stressors and their perceived stressfulness relates to demographic (i.e., age, sex, education level) and loss-related characteristics (i.e., time since loss, cause of death, expectedness of death, kinship to the deceased). Based on Eisma et al. (2017), we further predicted that the number and stressfulness of experienced restoration-oriented stressors would show positive correlations with worry. Lastly, based on the Dual Process Model, we hypothesized that experiencing more restoration-oriented stressors and perceiving these as more stressful would (a) relate to poorer psychological adaptation (i.e., higher prolonged grief and depression symptoms) and (b) that these associations would remain significant after controlling for demographic and loss-related characteristics and worry.

Method

Procedure and participants

This study received ethical approval from the Ethical Committee Psychology at the first author's institution. Data was collected as part of a research practical for second-year Dutch and international psychology students. Adults (≥ 18 years) who experienced the death of a first-degree relative or partner within the past 5 years were eligible to participate. All students in the course were asked to recruit three participants meeting these criteria. If this proved difficult, they were allowed to diverge from the initial eligibility criteria (i.e., they could recruit people who were bereaved of more distant family members or friends, or who experienced a loss longer ago), for educational purposes. All participants provided written informed consent. The questionnaire was sent and returned via e-mail (9%, $n = 17$), post (28%, $n = 51$), or was administered in a face-to-face setting (62%, $n = 111$).

One hundred-eighty-one bereaved adults completed the questionnaire (71% Dutch; 29% German). Sixty-three percent was female and their average age was 44.6 ($SD = 18.4$). Most participants had experienced the loss of a parent (59%, $n = 107$) and the average time since the loss was 34.0 months ($SD = 48.2$, $Median = 26.0$). The German participants were somewhat older than the Dutch participants, $t(179) = .27$, $p = .03$, $d = .38$, and had experienced fewer restoration-oriented stressors, $t(179) = -2.06$, $p = .04$, $d = .34$. No significant differences between Dutch and German participants were found on any of the other study variables (all $ps > .20$). Because of these limited group differences and similarities between the Dutch and German languages, our present sample combines participants from the two nationalities. Sample characteristics are summarized in Table 1.

Table 1. Sample characteristics.

	Dutch <i>n</i> = 129	German <i>n</i> = 52	Full sample <i>N</i> = 181
Sociodemographic characteristics			
Gender (valid <i>n</i> (%))			
Female	83 (64)	31 (60)	114 (63)
Age in years (<i>M</i> (<i>SD</i>))	42.6 (18.5)*	49.4 (17.4)*	44.6 (18.4)
Education level (valid <i>n</i> (%))			
College/university	53 (41)	25 (48)	78 (43)
Other	76 (59)	27 (52)	103 (57)
Loss characteristics			
Time since loss (<i>M</i> (<i>SD</i>))	31.2 (32.7)	41.0 (73.6)	34.0 (48.2)
Kinship (valid <i>n</i> (%))			
Partner	11 (9)	6 (12)	17 (9)
Child	6 (5)	2 (4)	8 (4)
Sibling	11 (9)	5 (10)	16 (9)
Parent	78 (60)	29 (56)	107 (59)
Grandparent	18 (14)	7 (14)	25 (14)
Other relationship ^a	5 (4)	3 (6)	8 (4)
Cause of death (valid <i>n</i> (%))			
Nonviolent	116 (90)	47 (90)	163 (90)
Violent	13 (10)	5 (10)	18 (10)
Death expectedness (valid <i>n</i> (%))			
Expected	69 (54)	27 (52)	96 (53)
Unexpected	35 (27)	15 (29)	50 (27)
Both or neither	25 (19)	10 (19)	35 (19)

Note: Violent loss consisted of accidents and suicides.

^aIncluded loss of e.g., friend, uncle, niece and ex-partner.

*Difference between German and Dutch sample, $t(179) = .27$, $p = .025$.

Materials

Socio-demographics and loss-related characteristics

A self-constructed questionnaire was used to assess socio-demographic characteristics (gender, age, level of education) and loss-related characteristics (time since death, kinship, cause of death, expectedness). For the expectedness variable, participants were asked if the loss was expected. They could reply "expected", "unexpected", or "both or neither".

Restoration-oriented stressors

The first and last author developed a self-constructed list of secondary stressors that may be experienced after bereavement. Five researchers in the bereavement field, among whom were four clinicians, were asked to check the content of the items and to suggest changes to the items, or additional items if they felt this was appropriate. After incorporating their input, a final scale was developed, the Restoration-Oriented Stressor Inventory (ROSI) comprising 20 items reflecting restoration-oriented stressors following bereavement. Participants rated whether they had experienced each stressor, and if so, how stressful this had been for them on a 4-point scale (0 = Yes, and not stressful; 1 = Yes, and somewhat stressful; 2 = Yes, and very stressful; 3 = No). At the end of the ROSI, two additional questions ("Did you experience additional secondary stressors? If so, which?") were added to ensure comprehensiveness. The German version was derived through a translation-back-translation procedure of the Dutch version. Both stressor lists are shown in an online supplement (see Appendix A; Table 2). The number of stressors was calculated by allocating one point for each experienced stressor. Stressfulness was calculated by allocating one point to a specific stressor if it was rated as "somewhat stressful" and two points if it was rated as "very stressful" by a participant. To calculate *mean stressfulness of each stressor*, we summed the points per stressor across participants and divided the sum by the number of participants experiencing it. To calculate a *perceived stressfulness score* for participants we summed the allocated points per participant.

Table 2. Restoration-oriented stressor inventory: occurrence and stressfulness of experienced restoration-orientation stressors.

Secondary stressors	"No" (<i>n</i> (%))	"Yes, and not stressful" (<i>n</i> (%))	"Yes, and somewhat stressful" (<i>n</i> (%))	"Yes, and very stressful" (<i>n</i> (%))	Stressfulness (<i>M</i> (<i>SD</i>))
I have seen that one or more family members had difficulty coping with the loss	28 (16)	17 (9)	86 (48)	50 (28)	1.22 (0.63)
I have taken care of practical issues related to the funeral (...)	59 (32)	47 (26)	51 (28)	24 (13)	0.81 (0.74)
Some activities I previously liked to do with the deceased I now had to do alone	92 (51)	22 (12)	50 (27)	17 (9)	0.94 (0.66)
I have seen that the health of other family members worsened after the loss	100 (55)	5 (3)	49 (27)	27 (15)	1.27 (0.57)
Some activities I previously liked to do with the deceased I now had to do with one or multiple others	106 (59)	39 (22)	28 (16)	8 (4)	0.59 (0.68)
I have taken care of other practical issues such as insurance, bank issues, or contracts (...)	116 (64)	21 (12)	29 (16)	15 (8)	0.91 (0.74)
I took on new roles that were previously filled by the deceased	129 (71)	11 (6)	33 (18)	8 (4)	0.94 (0.61)
I had to set new life goals	134 (74)	20 (11)	16 (9)	11 (6)	0.81 (0.80)
I took on tasks that were previously done by the deceased	135 (75)	20 (11)	21 (12)	4 (2)	0.64 (0.65)
My relationship with one or more family members has worsened or become less close	135 (75)	15 (8)	18 (10)	12 (7)	0.93 (0.78)
I had to find different ways to spend my leisure time	135 (75)	15 (8)	22 (12)	8 (4)	0.84 (0.71)
Others reacted inappropriately to my loss	142 (79)	9 (5)	18 (10)	12 (7)	1.08 (0.74)
Others avoided me after the loss	148 (82)	10 (6)	17 (9)	5 (3)	0.84 (0.68)
My relationship with one or more friends has worsened or become less close	150 (83)	8 (4)	15 (8)	8 (4)	1.00 (0.73)
The death of my loved one has been in the media	156 (86)	16 (9)	6 (3)	3 (2)	0.48 (0.71)
I have experienced financial problems	169 (93)	0 (0)	6 (3)	6 (3)	1.50 (0.52)
I have been involved in a juridical procedure (e.g., a court case after a death due to an accident or crime)	174 (96)	0 (0)	2 (1)	5 (3)	1.71 (0.49)
I had to move house	175 (97)	1 (1)	2 (1)	2 (1)	1.20 (0.84)
My employment situation changed	175 (97)	2 (1)	2 (1)	1 (1)	0.80 (0.84)
Media have approached me in relation to the loss	176 (97)	3 (2)	1 (1)	1 (1)	0.60 (0.89)

Note. Stressors are ordered on frequency of occurrence. Stressfulness is the average stressfulness score of a stressor when experienced.

Worry

Worry was assessed with the Penn State Worry Questionnaire – Past Week (PSWQ-PW; Stöber & Bittencourt, 1998). The PSWQ-PW is a self-report questionnaire consisting of 15 items measuring weekly worry. All original PSWQ-PW items were taken from the PSWQ (Meyer et al., 1990) yet were adapted to assess worry over the past week. The Dutch and German PSWQ-PW were similarly developed by adapting the items of the Dutch (van Rijsoort et al., 1999) and German (Stöber, 1995) translations of the PSWQ. The total score on this questionnaire reflects the level of weekly worry. Internal consistency of the PSWQ-PW in the current study was excellent, $\alpha = .92$.

Prolonged grief symptoms

Prolonged grief symptoms were assessed with the Inventory of Complicated Grief-Revised (ICG-R; Prigerson & Jacobs, 2001; Dutch translation: Boelen et al., 2003; German translation: Eisma et al., 2020b). Participants indicated on a scale ranging from 0 (never) to 4 (always) how often or to what extent they experienced specific grief symptoms. Reliability in the current sample was excellent, $\alpha = .94$.

Depression symptoms

Depression symptoms were assessed using the Center for Epidemiologic Studies Depression scale (CES-D; Radloff, 1977; Dutch version: Bouma et al., 1995; German version: Hautzinger et al., 2011). Participants indicated to what extent they had experienced specific depression symptoms over the past week on a 4-point scale ranging from 1 (rarely) to 4 (most of the time). In the current study, internal consistency was excellent, $\alpha = .90$.

Statistical analysis

SPSS version 26 (IBM Corporation, 2019) was used for all analyses. First, using independent *t*-tests and Chi square tests, we compared the characteristics of the Dutch and German participants (see section Procedure and Participants and Table 1). Sociodemographic (gender, age, education), loss-related (time since loss, kinship, cause of death, expectedness), independent (number of secondary stressors, perceived stressfulness) and dependent variables (worry, prolonged grief and depression symptoms) were examined.

Second, the characteristics of the secondary stressors were explored with descriptive statistics. For each stressor, we calculated the percentage of participants experiencing it and how stressful it was on average when experienced. We calculated the number of stressors and perceived stressfulness per participant (see Restoration-oriented stressors in Materials section). We explored the relationship between demographic and loss-related variables with the number of experienced stressors and perceived stressfulness using *t*-test, ANOVAs, and zero-order correlations. Next, we calculated zero-order correlations between the number of stressors, perceived stressfulness, worry, and prolonged grief and depression symptoms.

Before conducting the main analyses, we checked the assumption of linearity, normality of the residuals and homoscedasticity by inspecting scatterplots, normal probability plots and residual plots, for the relations between worry, number of stressors and perceived stressfulness, and prolonged grief symptoms and depression symptoms. Next, two separate hierarchical regression analyses using prolonged grief and depression symptoms as dependent variables were conducted. In the first step, demographic and loss-related variables previously identified as potential risk factors for prolonged grief symptoms (Burke & Neimeyer, 2013) were added as control variables. These included gender, age, educational level (i.e., high vs. low), kinship (i.e., loss of partner vs. other loss; loss of child vs. other loss), cause of death (i.e., violent loss vs. nonviolent loss) and expectedness of the death (i.e., unexpected vs. expected; “both or neither” vs. expected; dummy codes in Table 4). In the second step, worry was added as a predictor. In the third step, the number of experienced

stressors was added as a predictor. In the fourth and final step, perceived stressfulness was entered as a predictor. Given minor differences between language groups, we examined the influence of language of the questionnaire by including it as an additional control variable within the first step of the regression analyses (see Appendix B). Since this did not alter the outcomes of these analyses (regression coefficients, significance of effects and explained variance were highly similar), we report the analyses without this variable.

There was some missing data. Three to eight percent of the participants missed at least one item on each questionnaire, which was dealt with through listwise deletion. However, on the ROSI five participants had one missing item; these participants were retained in all analyses.

Results

Characteristics of the restoration-oriented stressors

Stressor characteristics are shown in Table 2 (ordered by frequency of occurrence). On average, 5.41 ($SD = 3.18$) stressors were experienced per participant and mean stressfulness of the specific stressors ranged between not stressful, 0.48, and very stressful, 1.71. No other stressors were reported with sufficient frequency ($\geq 5\%$ of participants reporting them) in the additional entry field below the stressor list to warrant mention.

Associations of demographic and loss-related characteristics with the number of stressors and perceived stressfulness

Significant relations emerged between age, kinship, and the number of experienced stressors. More stressors were experienced by younger participants, $r(179) = -.20$, $p = .006$, and those who had lost a parent, partner, or child, $F(5,175) = 16.12$, $p < .001$ (post hoc analyses comparisons vs. grandparent or sibling, all $ps < .01$). All other variables were non-significantly related to the number of stressors, all $ps > .18$.

Significant relations with perceived stressfulness were found for age, kinship, expectedness, and time since loss. Higher perceived stressfulness was reported by younger participants, $r(179) = -.24$, $p = .001$, those who experienced the loss a shorter time ago, $r(178) = -.20$, $p = .008$, and by those who had lost a parent, partner, or child $F(5,175) = 6.49$, $p < .001$ (all post hoc comparison analyses vs. grandparent or sibling, $ps < .01$). Participants were asked whether the loss was expected, and could indicate expected, unexpected, or "both or neither". Those who answered "both or neither" perceived stressors as more stressful than people who experienced the death as "expected", $F(2,178) = 3.24$, $p = .042$; post hoc comparison, $p = .031$.

To elucidate the relation between age, kinship and the occurrence of specific stressors we ran exploratory binary logistic regression analyses predicting the experience of a specific stressor from age and kinship. Six secondary stressors, for which differences based on age and kinship were considered likely, were selected for these analyses. Results are reported in Appendix C. In brief, notable findings were the following. Younger participants had higher odds of taking on new life roles, taking on tasks previously performed by the deceased, seeing other family members having difficulties coping with the loss, and of seeing family members' health deteriorating after loss. Compared to those experiencing parental loss, those experiencing conjugal loss had higher odds of having to take care of practical issues, taking on new life roles, and taking on new tasks previously performed by the deceased. Compared to those experiencing parental loss, those experiencing sibling loss or other losses (incl. grandparent and other relationships), experienced specific stressors (i.e., taking care of practical issues related to the funeral, taking care of other practical issues) less often, whereas *only* those experiencing other losses had taken on new roles and new tasks previously performed by the deceased less often.

Table 3. Correlations between the number of stressors, perceived stressfulness, worry, and prolonged grief and depression symptoms.

	Number of stressors	Perceived stressfulness	Worry	Prolonged grief symptoms	<i>M</i>	<i>SD</i>
Number of stressors					5.41	3.18
Perceived stressfulness	.78***				5.11	4.33
Worry	.15	.30***			36.65	16.84
Prolonged grief symptoms	.48***	.58***	.31***		49.73	16.38
Depression symptoms	.25**	.41***	.62***	.55***	10.98	8.52

** $p < .01$. *** $p < .001$.

Correlations between the number of stressors, perceived stressfulness, worry, and prolonged grief and depression symptoms

With the exception of experienced number of stressors and worry, $r(165) = .15, p = .051$, all main variables were significantly positively related (see Table 3).

Number of stressors and perceived stressfulness as predictors of prolonged grief and depression symptoms

Assumption checks showed no violations of assumptions of linearity or normality of the residuals. A minor deviation of homoscedasticity was observed for the prediction of prolonged grief symptoms. This was unproblematic given the finite variance of our data (Chatterjee & Hadi, 2006).

The final model of the hierarchical regression analysis predicting prolonged grief symptoms was significant, $F(11,149) = 10.29, p < .001, R^2 = .43$ (see Table 4). The first step, which included demographic and loss-related variables, explained 20% of the variance in prolonged grief symptoms. Only gender (females experienced more prolonged grief symptoms than males) and expectedness (less prolonged grief symptoms were reported after expected losses) added significantly to the final model. In the second step, worry was positively related to prolonged grief symptoms and explained 7% additional variance, significantly contributing to the final model. In the third step, the number of stressors was positively related to prolonged grief symptoms and explained 10% additional variance. However, the number of stressors did not significantly relate to prolonged grief symptoms in the final model. In the fourth step, perceived stressfulness was positively related to prolonged grief symptoms and explained 7% additional variance.

The final model of the hierarchical regression analysis predicting depression symptoms was significant, $F(11,149) = 12.88, p < .001, R^2 = .49$ (Table 4). The first step, including demographic and loss-related variables, explained 17% of the variance in depression symptoms. In this step, only kinship (more depression symptoms were experienced after child loss vs. other losses) added significantly to the final model. In the second step, worry related positively to depression symptoms, explaining 28% of variance and significantly contributing to the final model. In the third step, the number of experienced stressors did not significantly explain variance in depression symptoms. In the fourth step, perceived stressfulness positively related to depression symptoms, explaining 4% of variance.

Discussion

Given their central role in the Dual Process Model, and some evidence for effective clinical interventions based on this model, we aimed to chart frequently encountered restoration-oriented stressors and establish how often these were experienced, how stressful these were perceived to be, and how these variables in turn relate to worry and prolonged grief and depression symptoms. The prevalence of the 20 selected restoration-oriented stressors of the ROSI varied, with only 6 stressors endorsed by less than 10 percent of participants, and participants on average experiencing five stressors. Stressfulness varied as well; stressors were on average perceived as somewhat to very stressful.

Table 4. Hierarchical regression analyses predicting prolonged grief and depression-symptoms.

Variable	Prolonged grief symptoms				Depression symptoms			
	ΔF (df)	ΔR^2	β	<i>B</i> [95%CI]	ΔF (df)	ΔR^2	β	<i>B</i> [95%CI]
Step 1	4.68 (8,152)	.20***			3.82 (8,152)	.17***		
Gender			.17*	5.72 [1.38, 10.06]			.07	1.27 [-0.81, 3.34]
Age			.07	0.06 [-0.07, 0.20]			-.06	-0.03 [-0.09, 0.04]
Education			.08	2.71 [-1.79, 7.21]			.02	0.35[-1.80, 2.47]
Loss of partner			.06	3.25 [-5.53, 12.04]			.07	2.00 [-2.16, 6.16]
Loss of child			.08	6.46 [-4.31, 17.24]			.16*	6.71 [1.59, 11.84]
Violent loss			-.001	-0.07 [-7.68, 7.54]			-.07	-1.88 [-5.37, 1.61]
Unexpected			.14*	5.15 [0.01, 10.28]			.07	1.35 [-1.10, 3.80]
Both or neither			.15*	6.40 [0.80, 12.00]			-.003	-0.07 [-2.74, 2.60]
Step 2	13.80 (1,151)	.07***			76.73 (1,151)	.28***		
Worry			.16*	0.16 [0.02, 0.30]			.53***	0.26 [0.20, 0.33]
Step 3	23.52 (1,150)	.10***			1.12(1,150)	.004		
Number of stressors			.07	0.40 [-0.74, 1.54]			-.15	-0.40 [-0.95, 0.14]
Step 4	17.58 (1,149)	.07***			10.28 (1,149)	.04**		
Perceived stressfulness			.42***	1.65 [0.87, 2.42]			.31**	0.59 [0.23, 0.96]

Note. Reported β 's are from final model only. Gender is dummy coded, female (1) vs. male (0). Education is dummy coded, high (1) vs. low (0). Violent loss is dummy coded, violent (1) vs. nonviolent (0). The dummies for loss expectedness, unexpected (1) and both or neither (1) are coded vs. expected (0). The dummies for kinship, loss of partner (1) and loss of child (1) are coded vs. other loss (0; incl. parent, sibling, grandparent and "other relationship").

* $p < .05$. ** $p < .01$. *** $p < .001$.

These results suggest that restoration-oriented stressors frequently add to the distress experienced by bereaved people. Of a variety of sociodemographic and loss-related characteristics, only the participant's age and relationship with the deceased were consistently related to the number of experienced stressors and their perceived stressfulness. Worry did not relate significantly to the number of experienced stressors yet was moderately positively associated with perceived stressfulness of restoration-oriented stressors. Experiencing more restoration-oriented stressors and appraising them as more stressful related moderately to strongly to more symptoms of prolonged grief and depression. However, in a multivariate analysis including background characteristics and worry, stressor frequency and perceived stressfulness jointly had a moderate effect on prolonged grief symptoms, and a small effect on depressive symptoms. These effects on symptom levels were primarily driven by perceived stressfulness.

The identified variability in the number of restoration-oriented stressors and their appraised stressfulness fills a critical gap in the literature on the Dual Process Model. Specifically, meaningful differences emerged between bereaved persons in the number and types of stressors experienced and how these are perceived. Most notably, a closer kinship relation with the deceased (i.e., losing partner, parent, or child) consistently related to experiencing more, and more stressful, restoration-oriented stressors. Post-hoc analyses (which excluded bereaved parents for some stressors) demonstrated that conjugal loss and, to a lesser extent, parental loss also related to higher odds of experiencing specific stressors compared to people who lost siblings or more distant relationships. This includes taking on new life roles and tasks previously performed by the deceased and taking care

of practical issues emerging after the death. Additionally, perceiving the loss as less expected related to higher appraised stressfulness of restoration-oriented stressors. Since particularly child loss and partner loss, as well as experiencing unexpected losses, relate to more severe loss-related mental health problems (e.g., Kristensen et al., 2012; Burke & Neimeyer, 2013) one could hypothesize that this can partly be attributed to the additional burden caused by such secondary stressors.

Since some participants experienced many restoration-oriented stressors, there is also a possibility that some bereaved participants experience *overload*. That is, a large number of restoration-oriented stressors could make it difficult to “balance” coping with all of these as well as emerging loss-oriented stressors. In such cases, the bereaved person may simply be overwhelmed by the perception of having more than s/he feels able handle, leading to detrimental health consequences (Stroebe & Schut, 2016). A younger age was also associated with both higher restoration-oriented stressor frequency and stressfulness. Post-hoc analyses showed a higher prevalence of some stressors in younger bereaved people, such as taking on new life roles and tasks previously performed by the deceased, as well as observing other family members having difficulty coping and suffering from health problems. Being bereaved at a younger age may often imply taking on stressful new responsibilities, which includes caring for other family members.

Unexpectedly, worry did not relate significantly ($p = .051$) to the number of experienced stressors. This appears to disconfirm ideas by Eisma et al. (2017), who theorized that uncertain potentially stressful events occurring after the loss (incl. restoration-oriented stressors) would likely elicit worry. However, it is possible that this association is more difficult to detect in retrospective self-reported data. That is, it would seem likely that many participants predominantly reported on stressors occurring some time ago and that weekly worry does not fully reflect the worries they may have experienced at that time. Intensive longitudinal data gathering, using surveys or diaries, may be a better way to study associations between these constructs. For example, conducting a survey with recently bereaved individuals with monthly assessments of worry, restoration-oriented stressors, and loss-related distress, could help elucidate their temporal relations. The association between worry and the appraised stressfulness of restoration-oriented stressors and prolonged grief and depression symptoms, is in line with theoretical notions by Eisma et al. (2017) and empirical work by Eisma et al. (2020a), who provided preliminary evidence that worry might exacerbate distress because it serves as cognitive avoidance of painful aspects of the loss.

In our univariate analyses, both the number of stressors and their perceived stressfulness showed moderate to large associations with prolonged grief and depression symptoms. However, in multivariate analyses, only perceived stressfulness showed moderate associations with prolonged grief and a small association with depression symptoms after controlling for relevant demographic and loss-related characteristics, worry, and the number of stressors. Findings align with the Dual Process Model's proposition that bereaved people encounter restoration-oriented stressors after bereavement, which relate to distress. The results further suggest that appraisal of these stressors and worry may mediate this association. Results add to prior research showing that coping with restoration-oriented stressors relates to less severe grief (Fiore, 2019), and research showing that depressive avoidance of activities relates to more severe post-loss mental health problems (Eisma & Stroebe, 2021). It also complements trials showing that helping bereaved people deal with restoration-oriented stressors effectively, e.g., by engaging in new valued activities, reduces post-loss distress (e.g., Chow et al., 2018; Eisma et al., 2015).

This study provided a first comprehensive inventory of the types of restoration-oriented stressors experienced by bereaved people, how they appraise them, and examined their relations to coping and post-loss psychological adaptation. Whilst not the primary aim of this study, tentative support for the validity of the ROSI was also provided. Specifically, the content validity of the ROSI was supported by the fact that none of seven grief experts felt that additional stressors should be added and that participants did not report experiencing other restoration-oriented stressors with sufficient frequency to add to our checklist. Associations between perceived stressfulness and worry supported the convergent validity of the ROSI. Test-criterion validity of the instrument was supported both by

associations between demographic and loss-characteristics and stressor frequency and perceived stressfulness and by associations between the latter variables and mental health symptoms.

Nevertheless, some considerations are relevant when using and interpreting results from the ROSI. First, this instrument contains only the secondary stressors that experts believe bereaved persons would encounter under normal circumstances. However, there are situations wherein a loss is accompanied by additional stressors, such as after traumatic loss due to disasters, war, or pandemics. When conducting research into bereavement under extraordinary circumstances, it could be worthwhile to add stressors to the list. For example, frequent restoration-oriented stressors during the COVID-19 pandemic may include difficulties performing preferred death rituals (e.g., Eisma & Tamminga, 2020, Stroebe & Schut, 2021). Relatedly, a brief screen of frequently occurring stressors could be designed, by omitting the six stressors endorsed by less than 10 percent of all participants. Furthermore, one could consider adapting the phrasing of some items (e.g., "I have taken care of ...", could be adapted to "I encountered / was faced with ...") to increase measurement stringency (i.e., to strictly assess stressors rather than coping). Additionally, it is not possible to assess with the ROSI whether people did not encounter, or rather, deliberately avoided a particular stressor (e.g., undertaking new activities). It may be worthwhile in future investigations to adapt the ROSI so that these alternatives can be assessed.

There are some limitations to the present study. First, within this convenience sample highly educated people who lost a parent were overrepresented. Whilst the sample was heterogeneous in terms of loss characteristics, a different sample composition may have led to a different distribution of experienced stressors and differences in their appraisal. Second, the study was cross-sectional, precluding interpretations regarding temporal precedence and causality. Third, the study was retrospective, and the periods each instrument referred to differed (e.g., worry was assessed over the past week, whereas the occurrence of stressors was assessed in the period since the loss). This could introduce recall biases, which could have affected results. For example, people who are presently not severely distressed may remember the stressors they experienced as being less stressful, or people who experienced stressors more recently may be more likely to report them. Employing longitudinal designs or intensive data collection methods such as diaries and ecological momentary assessment among recently bereaved samples in future studies could shed more light on the temporal relationships between constructs under investigation (e.g., Ryckeboosch-Dayez et al., 2016; for example in non-bereaved samples: Anniko et al., 2019; Moberly & Watkins, 2008). This may also enable a more comprehensive study of the Dual Process Model by examining interrelations between loss- and restoration orientation stressors, their appraisals, coping, and oscillation. Fourth, the distinction between what constitutes a loss-oriented stressor and a restoration-oriented stressor is sometimes difficult to make as they depend on people's responses. Most notably, restoration-oriented stressors closely related to the death event itself, such as practical issues relating to the funeral, may be distressing both because of the decisions and work involved and because they remind someone of the loss itself. Our inventory generally does not allow for such subtle distinctions. Fifth, whilst oft used, our measure of prolonged grief symptoms, the ICG-R, does not assess the most up-to-date criteria for prolonged grief disorder. Future studies should employ valid measures of these criteria. Lastly, this checklist did not lend itself for conducting some standard analyses to establish construct validity, such as factor analyses.

Conclusion

Notwithstanding these limitations, we have put the major Dual Process Model construct "restoration-oriented stressors" to an empirical test and found it to characterize the experience of bereaved people and relevant to their adaptation. This line of research is important both for theoretical and practical purposes. Health care practitioners can assess these stressors and their impact to better understand the nature of the stressful experiences bereaved people face. We reiterate that flexibility is called for regarding the inclusion of items in the ROSI, and there is scope for much extension in

empirical investigation. Future studies, applying more advanced designs and methods, can further clarify relationships between characteristics and circumstances of bereavement, restoration-oriented stressors and their appraisal, coping styles, and mental health outcomes.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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