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Finding the silver lining: The relative roles of redemptive narratives and cognitive reappraisal in individuals' emotional distress after the end of a romantic relationship

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Abstract

The present research sought to identify a novel factor that reduces the emotional impact of relationship dissolution. Specifically, we examined individuals' use of redemptive narratives—a form of narrative focused on positive outcomes in negative situations—in post-dissolution journal entries written over the course of a 4-day diary study. An interaction emerged, that is, individuals reported reduced emotional distress to the extent that they had used more, versus fewer, redemptive narratives the day before (a lagged effect), but only at the end, not the beginning, of the study. This effect was independent from similar effects predicted by greater cognitive processing. These findings suggest that redemptive narratives may reduce individuals' post-dissolution distress.

Keywords

Emotional distress, reappraisal, redemptive narratives, relationship dissolution

> If clouds are blocking the sun, there will always be a silver lining that reminds me to keep on trying. ~Matthew Quick, *The Silver Linings Playbook: A Novel*

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The end of a romantic relationship is typically upsetting to individuals (e.g., Bowlby, 1980; Simpson, 1987). Divorce robustly predicts a variety of negative mental and physical health outcomes ranging from emotional distress and depression to a greater likelihood of various physical health problems (e.g., Lucas, 2005; Sbarra, Law, & Portley, 2011). Even the end of dating relationships predicts detriments to well-being (e.g., Boelen & Reijntjes, 2009; Davis, Shaver, & Vernon, 2003; Rhoades, Kamp Dush, Atkins, Stanley, & Markman, 2011), with breakup being a robust predictor of major depressive disorder in young adults (Monroe, Rohde, Seeley, & Lewinsohn, 1999). Given the impact of relationship termination on well-being, in combination with the fact that nearly 2 million adults in the US divorce every year and the dissolution of dating relationships is even more common (e.g., Tejada-Vera & Sutton, 2010), it is hardly surprising that many psychological traditions examine factors that influence individuals' emotional distress after the end of a romantic relationship. In the present study, we sought to further this investigation by examining whether the use of redemptive narratives (e.g., McAdams, Reynolds, Lewis, Patten, & Bowman, 2001) when thinking about the end of a relationship would predict emotional recovery. In short, redemptive narratives entail seeking the silver lining in dark clouds, focusing on positive outcomes that can emerge from negative circumstances.

Extensive research on relationship dissolution, both of dating relationships and of marriages, has focused on facets of individuals' cognition, emotions, and behavior that may help alleviate post-dissolution distress. Factors that appear to reduce distress—although certainly not an exhaustive list—include individual differences, such as attachment security (e.g., Feeney & Noller, 1992), self-views such as self-compassion (Sbarra, Smith, & Mehl, 2012), and various cognitive or emotional tendencies. One such as cognitive or emotional tendency that we include in the present investigation is the use of cognitive reappraisal and processing of emotional events (e.g., Gross, 2002).

Appraisal theories of emotion suggest that it is the subjective interpretation of an event, rather than the event itself, that leads to specific emotional reactions (Lazarus & Folkman, 1985). Research on appraisals and stress have found that people respond quite differently to the same or similar stressful life events depending on their interpretation of the situation. Cognitive reappraisal, which entails reframing an event in order to change one's emotional response to it, strives to aid individuals in reinterpreting emotional events in ways that mitigate the associated distress (Finkel, Slotter, Luchies, Walton, & Gross, 2013; Gross, 1998; Troy, Wilhelm, Shallcross, & Mauss, 2010). Unlike rumination, which encourages continued focus on the emotionality of an event and thus is associated with prolonged distress, cognitive reappraisal encourages individuals to think about an event rationally and distance themselves from it emotionally (e.g., Denson, Moulds, & Grisham, 2012; Richards, Butler, & Gross, 2003; Sbarra, Boals, Mason, Larson, & Mehl, 2013).

At its core, cognitive reappraisal involves construing emotion-eliciting occurrences in ways that alter their meaning and focuses on engaging in greater rational cognitive processing, rather than "hot" emotional processing, of an emotional occurrence (e.g., Gross, 2002; Lazarus & Alfert, 1964). Research has demonstrated that reinterpreting,

or reappraising, negative emotional events in a variety of contexts improves subjective well-being (e.g., Gross & John, 2003). For example, a 6-week intervention study of older adults experiencing depression and life challenges pitted types of cognitive therapies against one another (Watt & Cappeliez, 2000). In comparison to those in a social skills control group, participants in cognitive therapeutic conditions showed a decrease in depressive symptoms over a period of 3 months (Watt & Cappeliez, 2000). Further, participants receiving "integrative therapy," in which they had actively practiced cognitive reappraisal, outperformed participants receiving "instrumental therapy," in which they had passively recalled positive coping strategies that could be applied to their current negative life conditions (Watt & Cappeliez, 2000). These and other research findings (e.g., Finkel et al., 2013; Gross, 1998; Gross, 2002; Lepore & Greenberg, 2002) suggest that cognitive reappraisal can reduce emotional distress in response to life events, even when the content being processed is negative in nature.

The present research sought to contrast cognitive reappraisal with a different cognitive or emotional tendency that might also predict reduced emotional distress after the end of a romantic relationship, namely redemptive narratives. Research on narrative identities has demonstrated that, when contemplating their lives, individuals' focus on different aspects of important life events, and the patterning of what individuals choose to focus on, versus not, serves as an important predictor of well-being (Bauer, McAdams, & Pals, 2008). Redemptive narratives represent a particular pattern of storytelling that individuals sometimes engage in when recounting events in their lives (McAdams et al., 2001). At their core, redemptive narratives encompass the idea that negative life events or circumstances can be meaningful points in individuals' lives that result in positive outcomes or silver linings. Greater redemptive narrative use when recounting life events is associated with enhanced well-being, generativity in older adults, and emotional resilience to various negative events across several different age-groups (e.g., McLean & Pratt, 2006; Pals, 2006). Redemptive narratives differ from cognitive processing in terms of the focus of interpretation. While cognitive reappraisal involves distancing oneself from an event emotionally, creation of a redemptive narrative involves actively increasing and enhancing one's positive emotional experiences derived from an event by engaging in attempts to derive meaning from the event itself (Tugade, 2011).

One way of assessing both individuals' cognitive reappraisals or processing and redemptive narrative use regarding events in their lives is via coding of the linguistic content of individuals' verbal statements or writing samples (Pennebaker & Beall, 1986; Pennebaker, Mehl, & Niederhoffer, 2003). Rating the statements that individuals make regarding cognitive processes, such as insight and causality, has been shown to tap into the extent to which individuals are processing a negative emotional event in a calm, rational way (North, Meyerson, Brown, & Holahan, 2012; Richards, Butler, & Gross, 2003). Relevant to the present work, greater rational cognitive processing during journaling tasks has been shown to be associated with lessened emotional impact after the end of dating relationships (Boals & Klein, 2005; Lepore & Greenberg, 2002). Similarly, redemptive narratives are traditionally coded from audiotapes, transcripts, or writing samples of individuals describing particular events in their lives (McAdams et al., 2001). Thus, coding individuals' writing samples, such as journals, can provide important

insight into the different processes that they may employ in their efforts to come to terms with the loss of a romantic relationship. Furthermore, expressive writing (e.g., Pennebaker & Beall, 1986) has been used as an intervention in previous research to aid individuals in overcoming a variety of stressful life events, including the loss of a romantic relationship (e.g., Lepore & Greenberg, 2002; Sbarra, et al., 2013). Thus, simply writing about a relationship dissolution benefits individuals, and, as outlined above, additional work has established that the qualities of individuals' writing during journaling tasks can help (e.g., cognitive processing or redemptive narrative use; e.g., Finkel et al., 2013; McLean & Pratt, 2006) or hinder (e.g., rumination; Sbarra et al., 2013) individuals' emotional recovery after relationship dissolution. The present research sought to integrate the field's knowledge of the factors that may aid in recovery after the end of a romantic relationship and thus focused on the relative associations of redemptive narrative use and cognitive reappraisal or processing with emotional distress post-relationship dissolution.

The present research

The central aims of the research were threefold. First, the present work represents one of the first attempts to examine the usefulness of redemptive narrative use, specifically, on reducing emotional distress after a life event, and to focus on romantic relationship dissolution as the life event of interest. Second, to the researchers' knowledge, this is the first effort to directly compare the effectiveness of redemptive narrative use and cognitive reappraisal or processing within the same event context. Both redemptive narratives and cognitive reappraisal are positively associated with well-being after a variety of life events (e.g., McLean & Pratt, 2006; Watt & Cappeliez, 2000), but theoretically operate via distinct pathways. Redemptive narratives focus on finding emotional positivity in negative events (e.g., Pals, 2006), whereas cognitive reappraisal focuses on rationally examining the negative event while reducing the emotional charge associated with it (e.g., Gross, 2002). Thus, the one process increases or maintains emotional focus, albeit altering the valence of the emotions, whereas the other reduces emotional focus. The current research sought to examine how these two types of event-based processing may predict emotional distress over time and may independently predict distress following relationship dissolution. Thus, the second central goal of the present study was to examine two different psychological processes—redemptive narrative use and cognitive processing—that could be beneficial for individuals to engage in after a negative life event—the end of a romantic relationship—and to establish whether they represent similar or independent psychological processes in predicting emotional distress. We first examined the independent effects of redemptive narrative use and cognitive processing in predicting emotional distress. We then pit these two effects against each other in a simultaneous analysis in order to determine whether redemptive narrative use and cognitive processing would exert independent predictive effects upon emotional distress.

Third, the present study sought to investigate the *brief* temporal effects of these two different psychological processes—redemptive narrative use and cognitive processing—in predicting reduced emotional distress. Previous work examining redemptive narrative use and cognitive processing tends to focus on either a cross-sectional approach, in

which single narratives or writing samples are coded for the relevant processes and linked to well-being (e.g., Pals, 2006), or a longitudinal approach, in which narratives or writing samples assessed in previous months or years are coded for relevant processes and linked to well-being (e.g., Sbarra et al., 2013). The present work took a different approach. Specifically, we examined whether redemptive narrative use and cognitive processes would predict reduced emotional distress over an extremely brief period of time—a 4-day diary study. We selected this brief time period in order to investigate how powerful redemptive narratives and cognitive processing were shifting individuals' emotional distress. Do these processes need months or years to be effective, or are they associated with distress over shorter time periods? We also focused on how these processes might interact with time to predict distress. We examined whether redemptive narrative use or cognitive processing predicts immediate shifts in emotional distress or whether these processes exert their hypothesized effects over time.

Our three primary aims were to examine via three central hypotheses:

Hypothesis 1: We predicted that, across a brief daily dairy study, emotional distress would be reduced to the extent that a person engaged in greater redemptive narrative use over time. Specifically, we predicted an interactive slope effect such that greater redemptive narrative use on the previous day would predict less current emotional distress (a lagged effect) and that this effect would be strengthened over the course of a 4-day diary study.

Hypothesis 2: A second focus of the present study was to examine whether emotional distress would be reduced post-dissolution to the extent that a person engaged in greater cognitive reappraisal over time. Specifically, we predicted an interactive slope effect such that greater cognitive processing regarding the end of the relationship on the previous day would predict less current emotional distress (a lagged effect) and that this effect would be strengthened over the course of a 4-day diary study.

Hypothesis 3: Finally, we predicted that redemptive narrative use and cognitive reappraisal would reduce post-dissolution distress independently of one another. Specifically, we predicted that when used to simultaneously predict individuals' post-dissolution emotional distress, the effects of lagged redemptive narrative use over time and lagged cognitive processing over time would both remain significant predictors. This would suggest that both redemptive narrative use and cognitive reappraisal and processing can predict reduced distress after life events but would demonstrate empirically that they operate via distinct pathways.

Method

Participants

One-hundred and six nonstudent adults took part in a 4-day online daily diary study via a recruitment panel from Qualtrics.com (59 women, 46 men, 1 unreported; $M_{age} = 38.42$ years, $SD = 12.28$, range = 19–64). In order to be included, participants must have experienced a romantic relationship dissolution within the past 6 weeks (88.35% within

Table 1. Bivariate correlations among key variables and continuous participant characteristics.

	Redemptive Narrative (RN)	Cognitive Processing (CP)	Daily Distress (DD)	Intake Distress (ID)	Age	Relationship Duration	Weeks Since Breakup	Essay Word Count
RN	–	–	–	–	–	–	–	–
CP	−.05	–	–	–	–	–	–	–
DD	.22^	−.05	–	–	–	–	–	–
ID	.21^	−.06	.79^	–	–	–	–	–
Age	−.04	−.11*	.05	.002	–	–	–	–
Rel. duration	.06	−.01	−.02	−.03	−.01	–	–	–
Weeks since Breakup	−.004	−.04	−.04	−.07	.12*	.02	–	–
Word count	−.05	.12*	−.06	−.02	−.11*	.14^	.08	–

***$p < .10$. **$p = .05$. *$p < .05$. ^$p < .01$.

4 weeks of study start; $M_{\text{weekssincedissolution}} = 2.94$, $SD = 1.46$, range = 0–6; $M_{\text{relationshipduration}} = 40.04$ months, $SD = 58.67$, range = 1–288). Recruited participants had reported that they were not keeping a journal or diary of any kind upon entering the study.

Procedure

Participants completed a series of questionnaires at an intake session (Day 0). On Days 1–4, participants completed abbreviated versions of the questionnaires used at intake as well as a journaling task in which they were asked to write about the end of their relationship for up to 10 min. During the journaling task, participants wrote for an average of 8.5 min across the 4 days ($SD = 2.3$) and retention rates in the study were excellent (Intake/Day 0 $n = 106$, Day 1 $n = 105$, Day 2 = 92, Day 3 = 100, and Day 4 = 98). Relevant to the current study, participants completed a questionnaire measure of emotional distress and participants' journal entries were later coded for cognitive processing and redemptive narrative use. Pearson's r bivariate correlations are among these three key variables and all continuous participant characteristics are presented in Table 1.

For the journaling task, participants were actually given one of three sets of instructions, that is, to journal from a self-focused perspective, to journal from a relationship-focused perspective, or to write anything they wanted about the end of their relationship. This manipulation did not predict any of the variables reported in the present study or interact with any of the variables in the models.

Self-report measures

Emotional distress. Participants completed a measure of depressive symptomology at each assessment. Specifically, participants completed the Center for Epidemiological Studies–Depression scale, which is a measure of the amount of emotional distress an

individual is experiencing (Radloff, 1977). The present sample was nonclinical and no diagnoses were made as part of this study; thus, we refer to this measure as *emotional distress*.

In the present study, the original CES-D was modified slightly. The original measure asks individuals about how they felt in the past few weeks, given the brief nature of the present study, the CES-D in the present research was reworded to ask participants how they were presently feeling on each day of the study (i.e., "I am bothered by things that don't usually bother me."). Also differing from the original measure, participants were asked to agree or disagree with each statement on a Likert-type scale, and participants' responses were averaged to create a means of emotional distress for each day of the study, with higher scores indicating greater emotional distress (1 = *strongly disagree* to 7 = *strongly agree*; $M_{\text{overall}} = 3.55$, $SD = 1.41$, M $\text{range}_{\text{Days 2-5}} = 3.39$–$3.58$; $\alpha_{\text{overall}} = .95$, α $\text{range}_{\text{Days2–5}} = .95$–$.96$).

Coded measures

After study completion, the linguistic content of participants' journal entries (Days 1–4) was coded using two techniques. First, Linguistic Inquiry and Word Count (LIWC; Pennebaker, Francis, & Booth, 2001) analyzed each entry for the percentage of words out of the total that expressed *cognitive processing.* Second, two objective coders rated the extent to which each entry contained qualities of *redemptive narratives*. Complete descriptions are as follows.

LIWC provides a benefit beyond traditional linguistic coding practices in that the program is not prone to a variety of biases that can be present with human coders (Pennebaker et al., 2001; Tausczik & Pennebaker, 2010). Furthermore, LIWC provides reliable coding of text samples across time and different programs of research as it identifies the percentage of words, out of the total, in a text sample that fall into particular, predefined categories. Calculating the percentage of words out of the total also provides the added benefit of accounting for variation in the total word count across different individuals' writing samples as well as writing samples over time in the present work. Previous work validating LIWC as a coding paradigm also has demonstrated that, among others, the category used in the present research of cognitive processing (described below) can be extracted from text samples by the program with high levels of predictive validity (Tausczik & Pennebaker, 2010). LIWC does possess a serious limitation, however, of a lack of contextual sensitivity (Tausczik & Pennebaker, 2010). Thus, LIWC was not an ideal choice to code for our key variable of redemptive narratives. As described below, human coders were utilized instead.

Cognitive processing. LIWC coded cognitive processing from the present writing samples using a default dictionary, defined by program creators, that identified words in our text samples relevant to rational thought processes ($M_{\text{overall}} = 7.45\%$ of total word counts, $SD = 7.02$, M range = 6.84–7.72). The program flags all words relevant to a variety of forms of cognitive processing (312 total in the category; Pennebaker et al., 2001). The dictionary for category cognitive processing includes words relevant

to causation (e.g., because/cause), insight (e.g., think/know), certainty (e.g., always/never), tentative thinking (e.g., maybe/perhaps), inhibitions (e.g., constrain/restrain), and discrepancies (i.e., should/would). Not only does the dictionary include all iterations of relevant words (e.g., cause, caused, etc.), it also includes all synonyms of the target constructs. The full dictionary for cognitive processing is available in the manual for the LIWC program (Pennebaker et al., 2001). The subcategories of causation, insight, certainty, tentative thinking, inhibitions, and discrepancies are the names used by the program itself and reflect different types of cognitive mechanisms. All of the subcategories of the cognitive processing construct were highly correlated with each other in the text samples. Thus, we opted to conduct the analyses using the overarching construct.

Higher levels of cognitive processing as coded by LIWC have been linked to enhanced emotional and physical well-being in a variety of samples (e.g., Pennebaker & Francis, 1996; Pennebaker et al., 2003). Importantly, greater use of cognitive processing, as coded by LIWC, can reflect attempts to cognitively reappraise the meaning of emotional events as cognitive processing indicates effort to find meaning in emotional events and view them in calmer, more rational ways (e.g., Lepore & Greenberg, 2002; North et al., 2012). Use of the LIWC cognitive processing dictionary to assess attempts to apply cognitive reappraisal events has been successfully employed in research examining progression of physical illness and positive growth following traumatic experiences and adjustment to college (e.g., Ullrich & Lutgendorf, 2002; Pennebaker & Francis, 1996). On average in the current sample, cognitive processing did not systematically change over the course of the daily diary study, $B = -.28$, $t(247) = -0.96$, $p = .34$.

Redemptive narrative use. Two objective human coders, blind to study hypothesis, also rated the entire set of text samples for *redemptive narrative use.* Redemptive narratives reflect a form of thought and expression that individuals sometimes use when thinking, talking, or writing about events in their lives (McAdams Reynolds, Lewis, Patten, & Bowman, 2001). Specifically, redemptive narrative use reflects a search for and focuses on meaning making, or the lessons learned, and positive outcomes that can stem from negative events. In the current text samples, coders rated participants' explicit statements with regard to their attempts to find positive meaning in the end of their relationships and generated a single redemptive narrative use score for each participant on each journaling day of the study (e.g., McAdams, Reynolds, Lewis, Patten, & Bowman, 2001; 0 = *redemptive narrative not present* and 6 = *redemptive narrative extremely present*; $M_{\text{overall}} = 3.33$, $SD = 1.09$, M range = 2.32–3.66; $\text{ICC}_{\text{overall}} = .78$, $\text{ICC range}_{\text{Days 2–5}} = .78–.79$). The two coders' rating of each individual's diary on each day was averaged to create an index of the extent to which the diary represented a redemptive narrative, with higher scores indicating greater redemptive narrative use. For example, one of the statements made by a participant who received an indexed score of 5.5 on Day 3 of the study was, "I am really sad that we broke up, but maybe it's for the best. I am better off without somebody who doesn't treat me right." On average in the current sample, redemptive narrative use did not systematically change over the course of the daily diary study, $B = .04$, $t(207) = 0.97$, $p = .33$.

Results

For each individual *i*, we ran a series of multilevel growth curve analyses employing a maximum likelihood approach (Singer & Willett, 2003). Multilevel modeling was necessary to accommodate the nesting of responses over time within individuals, which violates the assumption of independence inherent in traditional ordinary least squares regression. In the current models, time *t* was coded 0–3 for the journaling Days 1–4 and all other variables were standardized ($M = 0$, $SD = 1$). In all models, we opted to standardize at the level of the group, rather than within individuals, as our key predictions hinged on differences in emotional distress between individuals based on their relative journaling tendencies over the course of the study, rather than variation in journaling tendencies over the course of the study within individuals. All variables were Level-1, or time-varying, predictors. In all models, time was treated randomly as different individuals had started the study on different days and thus were on different timetables for study completion; our other key predicted was treated as fixed. Additionally, an unrestricted covariance structure was allowed as this structure fit the data better than an autoregressive covariance structure (Bayesian Information Criterion [BIC] = 711.8, compared to an autoregressive (1) covariance structure with BIC = 731.8 when examining the intercept-only model).

After standardizing, lagged variables were created for both redemptive narrative use and cognitive processing as our key predictions hinged on the effects of yesterday's redemptive narratives and/or cognitive processing predicting today's emotional distress over the course of our 5-day diary study. Thus, to test Hypothesis 1, redemptive narrative use at Day 1 (the first day of journaling) in our analyses was lagged and used to predict emotional distress at Day 2, redemptive narrative use at Day 2 to predict Day 3 distress, and so forth. To test Hypothesis 2, the same procedure was employed with regard to cognitive processing.

To test Hypothesis 1, lagged redemptive narrative, time, study time, and their interaction effect were entered into a growth curve model predicting current emotional distress.[1] The model also included the main effect of redemptive narrative use on the current day and its interaction with time. The starting model for testing Hypothesis 1 was[2]:

$$\begin{aligned}\text{Time-varying emotional distress}_{it} = {} & \pi_{0i} + \pi_{1i}(\text{lagged redemptive narrative use}_{it-1}) \\ & + \pi_{2i}(\text{Time}_t) + \ + \pi_{3i}(\text{lagged redemptive narrative use}_{it-1} \times \text{Time}_t) \\ & + \pi_{4i}(\text{current redemptive narrative use}_{it}) \\ & + \pi_{5i}(\text{current redemptive narrative use}_{it} \times \text{Time}_t) \\ & + \pi_{6i}(\text{intake emotional distress}_i) + \varepsilon_{it}.\end{aligned}$$

For Hypothesis 1, our key prediction hinged on a significant slope effect such that individuals' emotional distress would be reduced to the extent that they engaged in greater redemptive narrative on the previous day, but that this effect would become greater over the course of study time.

The starting model for testing Hypothesis 2 was essentially the same as for Hypothesis 1 but with lagged cognitive processing rather than lagged redemptive narrative use as the key variable. The starting model for testing Hypothesis 2 was:

$$\begin{aligned}\text{Time-varying emotional distress}_{it} &= \pi_{0i} + \pi_{1i}(\text{lagged cognitive processing}_{it-1}) \\ &+ \pi_{2i}(\text{Time}_t) + \pi_{3i}(\text{lagged cognitive processing}_{it-1} \times \text{Time}_t) \\ &\pi_{4i}(\text{current cognitive processing}_{it}) + \pi_{5i}(\text{current cognitive processing}_{it} \times \text{Time}_t) \\ &+ \pi_{6i}(\text{intake emotional distress}_i) + \varepsilon_{it}.\end{aligned}$$

For Hypothesis 2, our key hypothesis also hinged on a slope effect such that individuals' emotional distress would be reduced, with this effect becoming greater over the course of study time, to the extent that they had engaged in greater cognitive processing on the previous day.

The full model for Hypothesis 3 was a composite of the Hypothesis 1 and Hypothesis 2 models. The Hypothesis 1 and Hypothesis 2 models were entered simultaneously, controlling for previous day emotional distress, into the regression testing Hypothesis 3. The full model for Hypothesis 3 was:

$$\begin{aligned}\text{Time-varying emotional distress}_{it} &= \pi_{0i} + \pi_{1i}(\text{lagged redemptive narrative use}_{it-1}) \\ &+ \pi_{2i}(\text{Time}_t) + \pi_{3i}(\text{lagged redemptive narrative use}_{it-1} \times \text{Time}_t) \\ &+ \pi_{4i}(\text{lagged cognitive processing}_{it-1}) \\ &+ \pi_{5i}(\text{lagged cognitive processing}_{it-1} \times \text{Time}_t) \\ &+ \pi_{6i}(\text{current redemptive narrative use}_{it}) \\ &+ \pi_{8i}(\text{current redemptive narrative use}_{it} \times \text{Time}_t) \\ &+ \pi_{9i}(\text{current cognitive processing}_{it} \times \text{Time}_t) + \\ &+ \pi_{10i}(\text{intake emotional distress}_i) + \varepsilon_{it}.\end{aligned}$$

For Hypothesis 3, our key hypothesis was that the two interaction effects examined in Hypothesis 1 and Hypothesis 2 would remain significant controlling for the other, thus establishing the two processes as independent in predicting emotional distress. We also conducted an auxiliary version of the Hypothesis 3 model in which we controlled for the main effects of participant age (Age_i) and biological sex (Sex_i), relationship duration ($\text{Relationship Duration}_i$), weeks since the relationship dissolution at intake ($\text{Weeks Since Dissolution}_i$), who terminated the relationship dissolution ($\text{Dissolution Initiator}_i$), participants' initial assignment to the failed writing manipulation (Condition_i), and writing word count (Word Count_{it}).

Testing Hypothesis 1

As predicted, the interaction between lagged redemptive narrative use and study time emerged as significant predicting current emotional distress (Table 2), $B = -.07$, $t(183) = -2.00$, $p < .05$. Supporting Hypothesis 1, greater lagged redemptive narrative use predicted less emotional distress over time (+1 *SD*; Figure 1; Aiken & West, 1991), $B = -.07$, $t(183) = -2.33$, $p = .02$, whereas less lagged redemptive narrative use did not (−1 *SD*), $B = -.01$, $t(183) = -0.58$, $p = .56$.

We also examined our simple effects differently, by examining the effect of lagged redemptive narrative use at the beginning versus end of our study, rather than looking at

Table 2. Full growth curve models for Hypotheses 1, 2, and 3 with covariates.

Hypothesis	Parameter	*df*	*B*	*t*
Hypothesis 1	Intercept	124	.06	0.98
BIC = 465.2	Lagged redemptive narrative (LRN)	183	.02	0.61
	Study Time (T)	183	−.05	−2.23*
	LRN × T	183	−.05	−2.00**
	Current day RN (CRN)	183	.12	2.48*
	CRN × T	183	−.03	−1.36
	Intake distress	124	.81	15.54^
Hypothesis 2	Intercept	143	.06	1.21
BIC = 583.4	Lagged cognitive processing (LCP)	241	.04	1.17
	T	241	−.04	−2.28*
	LCP × T	241	−.04	−2.00*
	Current day CP (CCP)	241	−.01	−0.20
	CCP × T	241	−.01	−0.32
	Intake distress	143	.78	16.57^
Hypothesis 3	Intercept	124	.05	0.80
	LRN	177	.04	0.97
BIC = 471.8	T	177	−.03	1.86
	LCP	177	.06	1.23
	LRN × T	177	−.04	−2.06*
	LCP × T	177	−.04	−1.84
	CRN	177	.12	2.37*
	CRN × T	177	−.05	−1.92
	CCP	177	.12	1.76
	CCP × T	177	−.08	−1.58
	Intake distress	124	.80	15.27^
Hypothesis 3	Intercept	110	−.19	−1.32
With covariates	LRN	168	.04	0.80
BIC = 475.1	T	168	−.03	−1.61
	LCP	168	.07	1.48
	LRN × T	168	−.04	−2.02*
	LCP × T	168	−.01	−1.94
	CRN	168	.08	1.57
	CRN × T	168	−.04	−1.55
	CCP	168	.14	2.02*
	CCP × T	168	−.09	−1.72
	Intake distress	110	.79	14.00^
	Age	110	−.00	−0.04
	Sex	110	.01	0.14
	Relationship duration	110	−.01	−0.10
	Breakup initiator	110	.05	0.87
	Weeks since breakup	110	.04	0.76
	Word count	168	.00	1.73
	Condition	110	.07	1.21

**$p = .05$. *$p < .05$. ^$p < .01$.

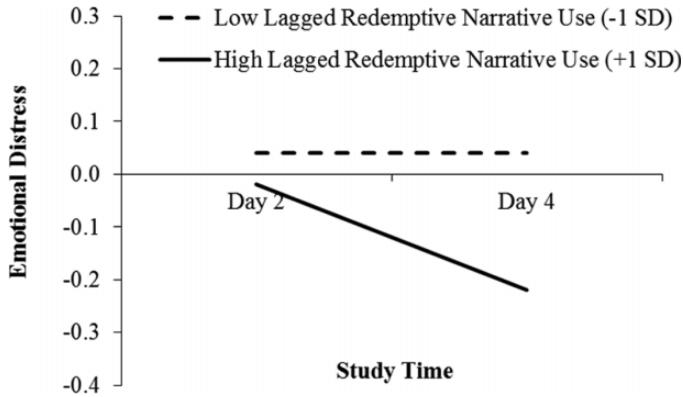

Figure 1. The effect of lagged redemptive narrative use over study time on emotional distress in the Hypothesis 1 model.

the slope of distress over time as a function of lagged redemptive narrative use. Interestingly, the effect of lagged redemptive narrative use was dependent on study time. At the beginning of the study (Day 2, as journaling began on Day 1), lagged redemptive narrative use did not predict emotional distress. $B = -.003$, $t(183) = -0.10$, $p = .92$; however, at the end of the study (Day 4) greater lagged redemptive narrative use predicted less distress, $B = -.06$, $t(183) = -2.04$, $p = .04$.

Testing Hypothesis 2

As predicted, the interaction between lagged cognitive processing and study time emerged as significant predicting current emotional distress (Table 2), $B = -.04$, $t(241) = -2.00$, $p < .05$. Supporting Hypothesis 2, greater lagged cognitive processing predicted less emotional distress over time (+1 *SD*; Figure 2), $B = -.08$, $t(241) = -3.08$, $p < .05$, whereas less lagged cognitive processing did not (−1 *SD*), $B = -.005$, $t(241) = -.18$, $p = .85$.

We also examined our simple effects differently, by examining the effect of lagged cognitive processing at the beginning versus end of our study, rather than looking at the slope of distress over time as a function of lagged cognitive processing. Interestingly, the effect of lagged cognitive processing was dependent on study time. At the beginning of the study (Day 2, as journaling began on Day 1), lagged cognitive processing did not predict emotional distress, $B = .03$, $t(241) = 0.95$, $p = .34$; however, at the end of the study (Day 4) greater lagged cognitive processing predicted marginally less distress, $B = -.06$, $t(241) = -1.86$, $p = .06$.

Testing Hypothesis 3

As predicted, the relevant interaction of lagged redemptive narrative use by time, $B = -.04$, $t(177) = -2.06$, $p = .04$, emerged as significant. However, contrary to the

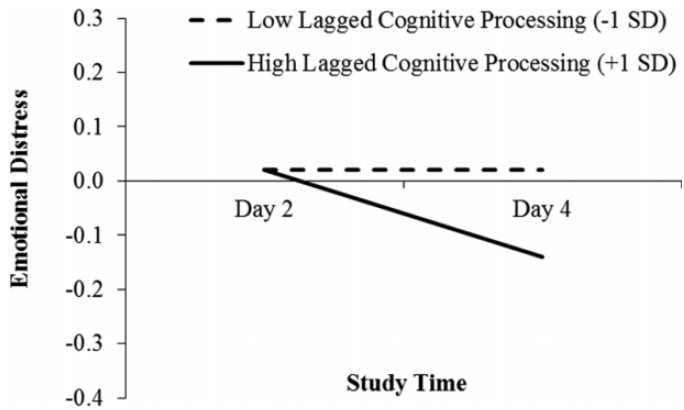

Figure 2. The effect of lagged cognitive processing over study time on emotional distress in the Hypothesis 2 model.

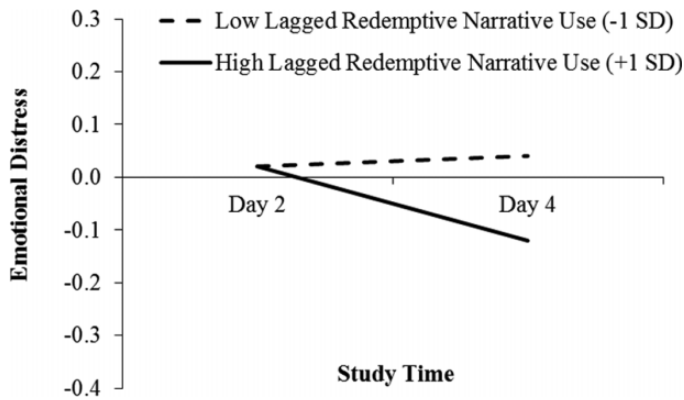

Figure 3. The effect of lagged redemptive narrative use over study time on emotional distress in the Hypothesis 3 model.

predictions, the effect of lagged cognitive processing by time did not, $B = -.04$, $t(177) = -1.84$, $p = .06$ (Table 2). Tests of simple effects revealed the same patterns of effects and statistical significance levels reported above for lagged redemptive narrative use (Figure 3). Given the nonsignificant effect of lagged cognitive processing by time, we did not deconstruct this interaction.

Auxiliary covariate analyses

We conducted a series of auxiliary analyses on the Hypothesis 3 model. We present the key lagged redemptive narrative use over time and lagged cognitive processing over time effects and the main and moderating effects of each covariate for each of our auxiliary

analyses in Table 2.[3] The interaction between lagged redemptive narrative use and study time remained significant in this stringent test, $p = .04$, and the patterns of effects remained robust. Additionally, none of the covariates contributed significantly to the model, $p > .18$. Finally, we examined whether lagged cognitive processing would moderate the interaction among lagged redemptive narrative use and study time. It did not, $p = .15$. Lagged redemptive narrative use and lagged cognitive processing were uncorrelated, $r = -.05$, $p = .34$.

Interpreting the magnitude of our effects

When examining the effects of lagged redemptive narrative use or cognitive processing over time, we sought to explicitly interpret the reduction in distress implied by our three key models. For the model testing Hypothesis 1 (Figure 1), the magnitude of participants' distress reduction from Day 2 to Day 4 of the study if they were +1 *SD* on lagged redemptive narrative use was a 0.26 *SDs* on the CES-D. For participants who were −1 *SD* on lagged redemptive narrative use that reduction was zero. Stated differently, the difference in distress for participants +1 versus −1 *SD* from the mean on lagged redemptive narrative use on Day 2 of the study was −0.02 *SD*s on the CES-D—as noted above this difference was not statistically significant. On Day 4 of the study, however, this difference was −0.20 *SD*s on the CES-D. Although statistically significant, this difference may not appear large from a practical standpoint. That said, if we extrapolate our model forward, the model implied difference in distress for participants +1 versus −1 *SD* from the mean on lagged redemptive narrative use on Day 7 would be −0.48 SDs on the CES-D, and on Day 30 would be −2.78 SDs on the CES-D.

Similarly, for the model testing Hypothesis 2 (Figure 2), the magnitude of participants' distress reduction from Day 2 to Day 4 of the study if they were +1 *SD* on lagged cognitive processing was a 0.16 *SD*s on the CES-D. For participants who were −1 *SD* on lagged redemptive narrative use that reduction was zero. Stated differently, the difference in distress for participants +1 versus −1 *SD* from the mean on lagged redemptive narrative use on Day 2 of the study was −0.02 *SD*s on the CES-D—as noted above this difference was not statistically significant. On Day 4 of the study, however, this difference was −0.16 *SD*s on the CES-D. Although statistically significant, this difference may not appear large from a practical standpoint. That said, if we extrapolate our model forward, the model implied difference in distress for participants +1 versus −1 *SD* from the mean on lagged redemptive narrative use on Day 7 would be −0.40 *SD*s on the CES-D, and on Day 30 would be −2.24 *SD*s on the CES-D.

Finally, for the model testing Hypothesis 3 (Figure 3), which was our most stringent model, we examined the magnitude of our significant interaction between lagged redemptive narrative use and time only. Again, the magnitude of participants' distress reduction from Day 2 to Day 4 of the study if they were +1 *SD* on lagged redemptive narrative use was a 0.14 *SD*s on the CES-D. For participants who were −1 *SD* on lagged redemptive narrative use, there was actually a slight increase of 0.02. Stated differently, the difference in distress for participants +1 versus −1 SD from the mean on lagged redemptive narrative use on Day 2 of the study was −0.02 SDs on the CES-D—as noted

above this difference was not statistically significant. On Day 4 of the study, however, this difference was −0.16 SDs on the CES-D. Although statistically significant, this difference may not appear large from a practical standpoint. That said, if we extrapolate our model forward, the model implied difference in distress for participants +1 versus −1 *SD* from the mean on lagged redemptive narrative use on Day 7 would be −0.35 *SD*s on the CES-D, and on Day 30 would be −1.96 *SD*s on the CES-D.

Across the tests of our three hypotheses, the effect of our predictors over time suggests that the contribution of lagged redemptive narrative use or cognitive processing is cumulative. The differences in distress between individuals high versus low in our predictors start small but grow quickly. Although our brief diary study did not include the later time points for any of our three models, the cumulative nature of our observed effects suggests that small decreases in distress may build over time, thus making our effects of potential practical significance for individuals who have recently experienced the end of a romantic relationship.

Discussion

In the present study, we examined the lagged effects of redemptive narrative use and cognitive processing in the writing samples of adults who had recently experienced the end of a romantic relationship. We found that greater lagged redemptive narrative use and greater lagged cognitive processing predicted less emotional distress over time. Importantly, the effects of lagged redemptive narrative use and lagged cognitive processing were dependent on study time. After only 1 day of journaling, lagged redemptive narrative use and lagged cognitive processing did not predict reduced distress. After 4 days of journaling, greater redemptive narrative use predicted less distress and greater cognitive processing predicted marginally less distress. Overall, the results from the present study supported our hypotheses by demonstrating that—when examined independently—greater, versus lesser, use of redemptive narratives over time predicted less emotional distress after the end of a romantic relationship (Hypothesis 1), and greater, versus lesser, cognitive processing over time predicted less emotional distress after the end of a romantic relationship (Hypothesis 2). When examined simultaneously, redemptive narrative use over time remained a significant predictor of reduced distress and appears to operate independently of cognitive processing (Hypothesis 3). That said, in our test of Hypothesis 3, cognitive processing over time did not remain a significant predictor of reduced distress.

Theoretically, these findings add to our understanding of how individuals emotionally recover after the loss of a romantic relationship as well as enhancing our understanding of the distinction between two cognitive-based coping mechanisms for dealing with potentially distressing life events. Although the present research could not determine the specific psychological mechanisms by which redemptive narratives and cognitive reappraisal function in the present study, the present research suggests that they are two distinct cognitive processes. Both redemptive narrative use and cognitive processing independently predicted reduced emotional distress in the current, even when analyzed in the same statistical model. This independence argues for two distinct processes that can aid individuals in their emotional recovery from a relationship loss. Perhaps viewing

negative events in the context of their positive outcomes can aid individuals in reinterpreting the meaning of these events through a similar, yet complementary, process to cognitive reappraisal. Future research would benefit from further examining the links between these two approaches to thinking and writing about significant life events.

The present research also contributed to our understanding of the temporal process behind the association between redemptive narrative use and cognitive reappraisal and reduced emotional distress after the end of a romantic relationship. Specifically, the current research suggests that these processes can be beneficial for individuals even when engaged in for short periods of time. The present study asked non-journaling participants to write for up to 10 min a day for 4 days. In this time, greater redemptive narrative use and cognitive processing predicted declining feelings of emotional distress. Furthermore, the effects of these processes on distress appeared as though it might be cumulative. No differences in distress emerged until the end of the present study. This suggests that, although redemptive narrative use and cognitive processing can benefit the individuals using them very quickly, they may take a few days to confer their benefits.

Practically, the findings from the present study suggest a potential point of intervention for helping individuals cope with the loss of a romantic relationship. Although the reductions in distress evidenced in our data started small, they appeared to accumulate over time, suggesting not only statistically significant but also practically significant reductions in distress. Additionally, our data evidenced reductions in distress on a well-validated clinical measure of depression, the CES-D. We believe that reductions in distress on such a measure, even within a nonclinical range, represent important fluctuations in individuals' psychological well-being. Additionally, given that the loss of a romantic relationship is typically a highly distressing event for individuals (e.g., Boelen & Reijntjes, 2009; Rhoades et al., 2011), which is associated with major depression disorder (e.g., Monroe et al., 1999), and depressive symptomology has broad reaching negative personal and societal consequences (National Institutes of Mental Health, 2014), any reduction in the depression-related distress that individuals experience after the end of a relationship has the potential to enhance overall well-being and functioning. We believe that the redemptive narratives examined in the present work may present an opportunity to give individuals a tool with which they can reduce their post-dissolution distress.

Future work should examine the precise mechanism behind why redemptive narrative use confers benefits to well-being. This may occur because redemptive narratives help individuals to "make meaning" out of a negative situation. According to the meaning-making model, recovering from a stressful event involves reducing the discrepancy between the initial appraised meaning of some event and the appraiser's general beliefs about the world and goals within it (Park, 2010). The individuals in the present study began writing about their ex-relationship at our request; none reported keeping a journal or diary prior to beginning our study. Thus, the beneficial effects of redemptive narrative use and cognitive processing as coded from their writing samples over just 4 days suggests that asking participants to write about the end of their relationships, and perhaps other life events, could be a simple, cost-effective way at aiding individuals in emotionally recovering. Indeed, the largest meta-analysis to date of the impact expressive writing has on emotional distress revealed that expressive writing generally is associated with moderate increases on self-reported and objective markers of well-being—including reduced depressive symptomology, even

following negative events such as losing a job or a relationship (Frattaroli, 2006; Gortner, Rude, & Pennebaker, 2006; Pennebaker & Chung, in press). Additionally, compared to control groups, participants who engage in expressive writing tasks also have shown improved functioning in their immune system as well as improvement on other biological markers of stress (Gortner et al., 2006).

Although the present study did not experimentally encourage versus discourage participants from using redemptive narratives, future studies should investigate whether this specific type of storytelling could be developed and honed as a way of treating post-dissolution distress. Future research also should look at boundaries of writing-focused interventions in enhancing well-being after a negative event, especially in light of recent work demonstrating that expressive writing tasks can enhance distress in certain individuals, specifically those prone to engaging in ruminative thinking, and thus be detrimental to well-being following marital separation (Sbarra et al., 2013). In the present study, participants were simply asked to write about the end of their relationship, without specific instructions regarding emotionally expressive writing or rumination versus reappraisal; however, investigating if/when redemptive narrative use could actually predict negative well-being outcomes seems to be a crucial investigation to pursue. It is possible that, for some individuals, attempts at redemptive narrative use could induce rumination rather than a focus on positive outcomes.

Limitations and additional avenues for future work

Despite these strengths and implications of the work, the present study possessed some limitations, and the prospect of addressing them presents exciting avenues for future research. For example, the effect of lagged cognitive processing by time in the test of Hypothesis 3 only emerged as marginally significant. This may be due to the differential sensitivity between the LIWC program and human coders. We think the LIWC may not have captured contextual sensitivity as well as the human coders captured the use of redemptive narratives. Further research should consider using the same method of narrative coding when comparing different types of cognitive processing in the context of narrative sequences. Additionally, although we view the duration of the study as one of its strengths, as it fills a gap in our understanding of the temporal effects of redemptive narrative use and cognitive reappraisal, it is worth re-stating that the present study was only 4 days in duration. Thus, future research should investigate the time course of the effects from the present research. Finally, the present research did not find evidence in the data for the mechanism by which redemptive narrative use or cognitive processing reduced distress. Identifying the precise process by which redemptive narrative use and cognitive processing enhance well-being are both important for determining the usefulness of this process for interventions.

Conclusions

Taken together, the present research demonstrated that finding the silver lining in the dark cloud of relationship dissolution aids individuals in reducing their emotional distress. That this effect emerged independent from the processing associated with cognitive reappraisal suggests that redemptive narratives may provide a novel pathway in helping individuals emotionally recover after the loss of a romantic relationship. Given the

negative effects of relationship dissolution on individuals' physical and psychological well-being, identifying new ways of providing relief is a worthwhile endeavor.

Authors' note

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Notes

1. For the models examining Hypotheses 1 and 2, we also investigated the reverse pathway, that is, whether lagged distress would predict either redemptive narrative use or cognitive processing either as a main effect or over time. Neither lagged distress nor its interaction with time predicted either redemptive narrative use or cognitive processing.
2. For all three models, we also conducted our analyses without controlling for Intake Emotional Distress. All key effects remained robust. We opted to include Intake Emotional Distress in our final models as doing so improved model fit using a Bayesian Information Criterion (BIC) for each model (Hypothesis 1: BIC without control = 592.9, with control = 462.2; Hypothesis 2: BIC without control = 730.6, with control = 583.4; and Hypothesis 3: BIC without control = 598.1, with control = 471.8).
3. Although not presented in Table 2 for the sake of clarity, we also examined whether our key effects would be moderated by any of our covariates. No significant moderational effects emerged.

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