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Positive emotion following spousal bereavement: Desirable or pathological?

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Abstract

Positive emotion following bereavement was examined in a prospective longitudinal study. Participants lost a spouse (n=250) and were interviewed prior to the death, 6 months after the death, and in some cases 18 and 48 months after the death.   Some theorists have suggested that positive emotion is desirable during distress even though earlier theorists suggested that positive emotion during distress may indicate pathology. In this analysis, positive emotion was associated with desirable outcomes (less depressed mood, more social support received, more social provision to others) and this effect was not diminished among people reporting elevated levels of distress. Also, the simultaneous occurrence of positive emotion and distress was not associated with pre-existing emotional instability. Those experiencing positive emotion reported lower levels of grief, but not qualitatively different grief. The findings suggest that positive emotion tends to be associated with desirable outcomes even among people reporting elevated distress.

Keywords: positive psychology, bereavement; grief; positive emotions; positive affect; widows, widowers, prospective longitudinal study

Positive emotion following spousal bereavement: Desirable or pathological?

Historically, some theorists and clinicians have argued or assumed that frequent positive emotion after an intense stressor can indicate repression, denial, and other pathology (e.g., Bowlby, 1980). According to this interpretation, these individuals are only temporarily successful in avoiding their negative emotions. From this perspective, frequent positive emotion after an intense stressor can be a sign of current or impending pathology.

Furthermore, one could raise additional concerns about people who report high (i.e., more than typical) positive emotion following a stressful event especially if they also report high (i.e., more than typical) distress. One could argue that simultaneous reports of positive emotion and distress could indicate not only inauthenticity and fragility as discussed by Bowlby (1980), but also trait emotional instability. In particular, there is some debate (see Larsen, McGraw, Mellers, & Cacioppo, 2004) regarding whether positive and negative affect tend to be experienced simultaneously, or whether people reporting both have actually vacillated between the two. Thus, one could wonder whether there is a pathological basis for simultaneous reports of both positive affect and distress. If the vacillation explanation is correct, then one could hypothesize that pre-existing trait emotional instability might account in part for this ability to show elevated levels of both positive affect and distress. This vacillation hypothesis is further supported by the fact that during times of distress, positive and negative affect become negatively correlated (Reich, Zautra, & Davis, 2003). Thus, those reporting both may have tended to vacillate back and forth between extreme emotional states rather than experiencing both simultaneously.

However, some theorists (e.g., Folkman, 2008; Fredrickson, 1998) have argued that positive emotion is desirable, even shortly after intense stressors. Some empirical evidence will be reviewed that supports this more recent interpretation of positive emotion, but first the theoretical models will be reviewed briefly: Fredrickson (1998) developed the broaden and build theory of emotion which includes a constructive role for positive emotion. According to Fredrickson, positive emotions broaden the momentary "thought-action repertoire" (making the individual more creative in cognition and physical action) and build physical, intellectual, and social resources. In particular, Fredrickson suggested that when an individual follows urges (e.g., the urge to play, explore, savor, or integrate) that stem from broadened scopes of thought and action, personal resources are developed. These enhanced resources could then facilitate coping.

Folkman (2008; see also Folkman and Moskovitz, 2000) also proposed a model in which positive emotion can enable adaptive responses during chronic stress. In particular, she argued that positive emotion provides an important respite from distress. The positive emotion may interrupt the ruminatory process that can lead to clinical depression (Folkman and Moskovitz, 2000),restore coping resources, and provide motivation for problem-focused coping (Folkman, 2008). She also suggests that positive affect during chronic stress is facilitated by meaning-focused coping; however, the relevance to the current discussion is the adaptive nature of positive emotion during times of distress and in particular the fact that positive emotion in times of distress should predict good outcomes. Thus, according to both Fredrickson (1998) and Folkman and Moskovitz's (2000) theorizing, positive emotion in the midst of intense stressors may predict positive rather than negative outcomes.

Also, Ong, Bergemann, and Chow (2010) have developed a model in which people who are resilient will have greater access to positive affect than will others, and this positive affect can then disrupt daily stress.

Some empirical evidence supports this idea that positive affect is desirable even in the midst of distress. For example, Billings, Folkman, Acree, and Moskowitz (2000) reported a

study of AIDS caregivers. Among HIV negative caregivers, positive affect predicted reductions in their own physical symptoms. The relation emerged for positive affect even when controlling for initial symptom level and for level of positive affect in a prior interview. Admittedly, the same pattern was not observed for HIV positive caregivers.

Some evidence also suggests that positive affect is relevant among bereaved samples. Pennebaker, Mayne, and Francis (1997) studied texts written by bereaved individuals and found that the proportion of positive relative to negative emotion words was associated with better health and less subsequent distress. Also, Bonanno and Keltner (1997) provided evidence that positive affect six months after bereavement predicted reduced levels of grief twenty five months after the loss. Ong, Bergeman, Bisconti, and Wallace (2006) also examined positive affect among the bereaved. In a daily diary study, they found that positive affect mediated next day stress recovery. In other words, the relation between day 1 stress and day 2 negative affect became statistically nonsignificant when controlling for day 1 positive affect.

However, one must be cautious in interpreting the positive emotion effect in some studies. In some cases, elevated positive emotion may indicate that the individual has experienced less distress than have other participants. Not all people experience a similar level of distress following particular stressors. For example, Bonanno et al. (2002) reported that some widows report much lower levels of distress than do other widows. In fact, some of the women self-reported less depression after the loss than before the loss. This type of finding makes sense in light of the Lazarus and Folkman (1984) stress and coping framework. In this framework, stress in not merely a result of external events, but is an interaction between events and the individual.

Thus, it is especially important to study the predictive power of positive affect not only among people who have experienced distressing events, but among people who are particularly distressed following these events. Few studies, however, have sought to more broadly characterize the characteristics and experience of people who experience elevated positive emotion while simultaneously experiencing elevated levels of distress. One could partly overcome this problem by controlling for self-reported distress in regression analyses. Nonetheless, even in that type of analysis, if the less distressed participants evince a strong relation between positive affect and positive outcome, a significant effect may be found when analyzing the whole sample even if the effect among the more distressed is negligible. Thus, one should either focus on the subset reporting above average distress or examine interaction terms with the whole sample to determine whether the predictive power of positive emotion differs for people who are more distressed. Both strategies are followed here.

Thus, several questions predominate our analysis. *First, among those who have experienced a traumatic event, does positive emotion tend to predict a good outcome even for individuals simultaneously reporting elevated distress?* Recent theorists have promoted positive emotion as a desirable experience for those facing distress (Folkman & Moskowitz, 2000; Fredrickson, 1998). We hypothesized that positive affect would be associated with good outcomes even for people currently reporting elevated distress. In the current analysis, a good outcome was assessed in several ways. (A) Depressed mood was used as a negative indicator of outcome. (B) Received social support was used as an indicator of positive outcome. In particular, those experiencing positive emotion may be more likely to attract social support; some prior evidence does suggest that a positive mood may attract social support (Keltner & Bonanno, 1997). (C) The positive psychology movement has drawn attention to the value of not only receiving, but also providing social support. Furthermore, positive affect may increase the

likelihood of providing support to others. Thus, provision of social support to others was also used as an indicator of positive outcome.   These three indicators collectively suggest a good outcome for the bereaved individuals.

   Second, does positive emotion among those experiencing elevated grief reflect pre-existing emotional instability? Some could argue that frequent experiences of both intense grief and positive emotion may indicate not well-being, but instead a tendency to vacillate between emotional states and possibly underlying emotional instability. We hypothesized that the co-occurrence of positive affect and distress would not be associated with pathology including not being associated with emotional instability.

   Third, is the experience of grief qualitatively different for those who simultaneously experience positive emotion? Some could argue that positive emotion indicates a less serious profile of distress. For example, it could have been hypothesized that those reporting more frequent positive emotion might also have reported higher levels of a grief symptom like yearning, which could potentially be associated with recalling positive events.   Thus, we examined different facets of grief among the participants. The data available here allow for at least a preliminary analysis related to all these questions among a group of people who had lost a spouse.

Method

Participants

   A sample of 1532 married women and men for which the husbands were at least 65 years of age was recruited in Michigan and interviewed (hereafter referred to as the baseline or pre-loss interview). The data come from the Changing Lives of Older Couples study. Following the baselines interviews, the state death records were regularly checked, and participants who lost a spouse were invited to take part in follow-up interviews (the post-loss interviews). Because of the age of the men, the study designers expected that a significant proportion of participants would be bereaved during the course of the study. A total of 250 were bereaved and provided the grief and positive emotion data needed for this analysis at the 6-month post-loss time point. The average age of these at baseline was 70.3 (SD=6.86) and when bereaved was 73.0 (SD=6.77). Of these, 215 were female and 35 male. They reported their race as either white (n=211) or black (n=39) and had an average of 11.3 years of education (SD=2.75) [At the time of data collection, the median years of education for American residents over age 54 was 12.2 (U.S. Census Bureau, 2010).].

Measures

   Bradburn affect balance scale-positive emotion. The five positive emotion items from the Bradburn affect balance scale (Bradburn, 1969) were used to assess frequency of positive emotion six months after bereavement. Participants were asked, for example, how often in the past week they had felt on "top of the world" and "particularly excited and interested in something." Response options included always, often, sometimes, rarely, and never (alpha=.77). The positive affect scale has shown good test-retest stability (Charles, Reynolds, & Gatz, 2001). The scale has shown some evidence of convergent validity in associations with measures such as extraversion (Charles, Reynolds, & Gatz, 2001; McCrae & Costa, 1983) and sense of empowerment (Itzhaky & York, 2000) and expected negative associations with neuroticism (Charles, Reynolds, & Gatz, 2001).

Self-reported grief. A nineteen-item grief scale with six subscales was generated from these data and has been described in a prior report (Bonanno et al., 2002). For the current report, the measure taken six months after bereavement was used in all analyses. The grief scale (alpha=.88 in this sample) has subscales for anxiety (alpha=.71; 3-item, e.g., "Afraid of what is ahead"), despair (alpha=.64, 3-item, e.g., "felt life has lost its meaning"), shock (alpha=.77, 3-item, e.g., "felt in a state of shock"), anger (alpha=.68, 3-item, "felt resentful or bitter about the death"), yearning (alpha=.75, 4-item, e.g., "longing to have him with you"), and intrusive thoughts (alpha=.66, 3-item, e.g., "couldn't get thoughts about him out of your mind"). Validity evidence is provided by the fact that every grief subscale produced a correlation coefficient of at least .40 with the CES-D measure of depressed mood and by the fact that the mean grief score decreased across the 6, 18, and 48 month post-loss time points (F(1.95, 70) =52.65, p<.001, Huynh-Feldt corrected) as would be expected for a measure sensitive to effects of bereavement.

Center for Epidemiological Studies – Depressed mood Scale (CES-D; Radloff, 1977). An 11-item version of the CES-D was administered (alpha=.84). The CES-D has been widely used and has extensive validity evidence. For example, the 20-item CES-D Scale (CES-D; Radloff, 1977) has been shown to differentiate depressed participants from controls (Haringsma, Engels, Beekman, & Spinhoven, 2004). The 11-item short form used here has produced an alpha of .81 in prior research and correlated .95 with the full 20-item scale (Kohout, Berkman, Evans, and Cornoni-Huntley, 1993). CES-D short forms are associated with both suicidal thoughts and a history of suicide attempts (Cheung, Liu, & Yip, 2007). This scale was administered at the pre-loss interview, and 6-, 18-, and 48-months post-loss.

Emotional instability. Emotional Instability (i.e., neuroticism) was assessed at the pre-loss interview with a shortened form of the NEO-PI (Costa, & McCrae, 1985; Costa, & McCrae, 1992b; Costa, & McCrae, 1989) emotional instability items. Paul Costa, who helped develop the NEO-PI developed the short form of the scale for this study. The subscale had 11 items (Alpha=.68, e.g., "I'm an even-tempered person", "When everything seems to be going wrong, I can still make good decisions" "When I'm under a great deal of stress sometimes I feel like I'm going to pieces", "I am easily frightened"). Emotional instability was associated with concurrent depressed mood (*r*=.42).

Social support received or available: Positive emotional support received from friends and relatives (alpha=.71) was assessed by having participants provide ratings in response to the following questions: "How much do your "friends and relatives make you feel loved and cared for?" and "How much are they willing to listen when you need to talk about your worries or problems?" The items are from the Dyadic Adjustment Scale (Spanier, 1976). Evidence for validity was provided by a negative correlation with the CES Depressed mood measure at baseline (r(460)= -.21, p<.001) among a larger sample of bereaved and controls who answered this question in the pre-loss interview. This scale was administered at the pre-loss interview, and 6-, 18-, and 48-months post-loss.

Social support provided: An index of provision of support to others in the community (i.e., *Support Provision to Community*) was created based on the number of service activities reported by the participant. In particular, participants were asked whether they did volunteer work for an organization, transported or ran errands for others, helped others with housework or upkeep, did childcare without pay, completed other tasks for other people, or provided physical care for someone who was ill. The index was meant to sum the independent effects of provision of support behaviors, so the behaviors were not expected to be highly correlated. Thus, internal consistency was not calculated. A small, but significant negative relation with CES-Depressed

mood emerged, r(460)= -.15, p=.001 among a larger sample studied prior to the loss. This scale was administered at the pre-loss interview, and 6-, 18-, and 48-months post-loss.

Analyses

    Classification process. A K-means classification was conducted to select two clusters of people who were experiencing significant distress, but who differed on frequency of positive emotion six months after the loss. The process was as follows: Initially, four centroids were selected: (1) high on both grief and positive emotions (one standard deviation above the mean), (2) high on grief, but low on positive emotions (one standard deviation below the mean), (3) low on grief and high on positive emotions, and (4) low on both. For each participant, a squared Euclidian distance from each centroid was calculated; this is the sum of their squared distances from the centroid. Based on these distances, each case was assigned to the closest centroid. This process created four clusters (high-high, high-low, low-high, and low-low); for this analysis, the two groups high on grief were retained.

    Thus, these two groups differed in frequency of positive emotion, although both reported elevated levels of grief. One problem remained. Ideally, both groups would have similar grief levels in order to assure that group differences were related to positive emotion, the focus of this study, rather than due to grief level differences. However, it was noted that some in the low positive emotion group reported particularly high levels of grief (although both groups had the same minimum grief scores). This group also had a higher mean grief score (t(108)=3.63, p<.001). The purpose of this analysis was to compare groups with relatively similar elevated levels of grief, but different levels of positive emotion. In order to give the groups equal ranges of grief scores, we excluded all participants with grief exceeding that of the highest grief scores in the positive emotion group. The maximum grief scores of the high positive emotion group became the maximum grief scores for the low positive emotion group as well. This reduced the size of the low positive emotion group from seventy to fifty three.

    As a result, both groups had similar grief levels, but one group reported less frequent positive emotions (n=53; 45 women, 8 men) and one group reported more frequent positive emotions (n=40; 35 women, 5 men). Both groups had equivalent maximum and minimum grief scores (and no longer significantly differed on mean levels of grief (t(91)=1.47, p=.145). In order to assure that gender was not driving the group differences, the gender make-up of the groups was compared. The groups did not significantly differ in proportion of women (χ^2(1)=.128, p=.772), so both men and women were retained for further analyses. The means for the major variables are displayed in Table 1.

    Regressions. The classification-based analyses have the advantage of focusing on the subgroup of particular interest (those with elevated grief scores), but the disadvantage of a reduced sample size and of ignoring some variance. Thus, a series of hierarchical linear regressions could have more power. Thus, the regression analyses were conducted with the whole bereaved sample. Independent variables were standardized before they were entered into the regression equations. In almost all regression analyses, gender was unrelated to the dependent variable. Thus, gender was dropped from all analyses except for some social support analyses for which statistically significant effects for gender emerged.

Results

Group-based comparisons

Does a high level of positive emotion predict a good outcome? The classification process described above produced two groups that both reported similarly elevated grief according to the measure of grief, but differed in frequency of positive affect. As shown in Table 2, the positive emotion group reported lower levels of depressed mood at all time points (baseline t(91)=2.47, p=.015, d=.52; 6 months post-loss t(91)=3.13, p=.002, d=.66, 18 months post-loss t(74)=2.69, p=.009, d=.62, and 48 months post-loss t(36)=3.14, p=.003, d=1.02). This version of the CES-D depressed mood measure included mainly negatively worded items (e.g,. "I could not 'get going,'" "I felt sad"), but also included two reverse scored positively worded items (e.g., "I enjoyed life"), so the analyses were run a second time after these items were excluded from the C-ESD; the groups still significantly differed on the CES-D measure of depressed mood at all time points even when these positively worded items were removed.

Also, though the positive emotion group did not report significantly greater emotional support from friends and relatives at baseline (t(91)=1.13, p=.261, d=.01), they did at all follow-up waves (6 months post-loss t(91)=2.33, p=.022, d=.50, 18 months post-loss t(74)=2.59, p=.012, d=.60, and 48 months post-loss t(36)=2.72, p=.010, d=.90). In terms of support provision, the positive emotion group, provided significantly more support to the community at baseline (t(91)2.068, p=.041, d=.54), and wave 1 (t(91)3.285, p=.001, d=.68), though not at wave 2 (t(74)1.544, p=.127, d=.35), and only marginally at wave 3 (t(36)1.725, p=.093, d=.56).

Does positive emotion accompanying grief reflect pre-existing emotional instability? The groups were compared on emotional instability to assess whether co-occurence of grief and positive emotion indicate emotional instability (see Table 2). This measure of emotional instability was collected at the baseline interview (prior to the loss). The positive emotion group (n=40) did not show different levels of emotional instability (t(91)=.428, p=.670, d=.09) when compared to the other group (n=53).

Does positive emotion with grief indicate a qualitatively different grief profile? The grief scale included six subscales, so a MANOVA was conducted to compare the two groups on grief subscale scores 6 months post-loss, and the groups did not differ in grief subscale scores (Pillai's Trace: F(6, 86)=1.518, p=.182, η^2=.096). This suggests that the groups were having similar grief experiences.

Regressions

Does a high level of positive emotion predict a good outcome? Hierarchical linear regressions were conducted to examine the relation between positive emotion and depressed mood. Depressed mood was the dependent variable. The first block of variables entered were the main effects of positive emotion and grief measured 6-months post-loss. As shown in Table 3a, positive emotion 6-months post-loss was associated with lower levels of depressed mood concurrently, subsequently, and even prior to the loss (see beta values on right side of Table 3a).

However, one could ask whether the positive emotion effect holds true at various levels of grief. In other words, does positive emotion predict a good outcome even for those experiencing intense grief? Thus, an interaction term for positive emotion and grief was added to the model. The interaction term is sensitive to variations in the positive emotion effect across different levels of grief. In this case, the interaction term was statistically significant only when predicting the 6-month post-loss depressed mood levels. If one writes out the regression

equation (depressed mood = -.266*positive emotion + .591*grief
-156*grief*positive emotion) and then modifies that equation by substituting in a mean level of
grief (grief=0) and then repeats that with a grief value one standard deviation above the mean
(grief=1), it becomes obvious that the negative relation between positive emotion and depressed
mood is strongest among those who are high on grief (Aiken, 1991).

  Similar regressions were conducted with received social support as the dependent
variable (see Table 3b). Gender was associated with social support at some timepoints, so was
included as a control variable in these analyses. Positive emotion 6-months post-loss was
associated with increased levels of current and subsequent social support from friends and
relatives. None of the interaction effects were significant, thus suggesting that his effect does not
differ for people reporting different intensities of grief.

  As shown in Table 3c, similar regressions were conducted with provision of support to
the community as the dependent variable. Positive emotion 6-months post-loss was associated
with an increased tendency to provide support to others at all timepoints (see beta values on right
side of table). None of the interaction terms were significant, so this effect does not seem to be
dependent on level of grief.

  Subsequently, even more stringent tests of the predictive power of positive affect were
conducted. These are shown in Table 4. These regressions used positive affect 6-months post-
loss to predict outcome 18- and 48-months post-loss while controlling for self-reported distress
in response to the loss (i.e., grief), and controlling for the outcome measures assessed prior to the
loss. In these tests, positive affect predicted lower levels of depressed mood and higher levels of
social support both18- and 48-months post-loss. Positive affect also predicted support provision
48-months post-loss. The interaction terms tested whether these effects varied across different
intensities of self-reported grief. None of the interactions were significant. The interaction terms
predicting depression approached significance, but even then, the beta terms under that condition
(not shown in the table) were such that the predictive power of positive affect would be enhanced
rather than diminished when distress was elevated (Aiken, 1991).

  Does positive emotion accompanying grief reflect pre-existing emotional instability? In
this hierarchical linear regression (see Table 5), the dependent variable was pre-loss emotional
instability (This is the reverse of the typical regression because in this case the dependent
variable was measured earliest. This unusual form of regression allowed a test of whether the
interaction, i.e., combination, of positive affect and distress was related to emotional instability.).
The main effects of positive emotion and grief were entered as the first block of variables, and as
shown on the right side of the table, pre-loss emotional instability was associated with self-
reported grief. The interaction between positive emotion and grief did not produce a statistically
significant ΔR^2 (see block 2 on left side of table). The interaction term can account for the co-
occurence of positive emotion and grief. The nonsignificant result for the interaction term
suggests that the co-occurence of elevated grief and positive emotion does not indicate
underlying emotional instability.

  Does positive emotion with grief indicate a qualitatively different grief profile?
Hierarchical linear regressions were conducted to examine whether positive emotion indicates a
qualitatively different grief profile (see Table 6). For the first regression, positive emotion 6-
months post-loss was the dependent variable. The main effect of grief (i.e., grief total score) was
entered into the regression to control for overall level of grief. Positive emotion was negatively
associated with overall level of grief. Subsequently, the grief subscales were added, but this
block of variables did not produce a significant ΔR^2, so was not retained in the analysis. The

results suggest that positive emotion tends to be associated with lower self-reported grief, but not a particular pattern of grief subscale scores.

Discussion

The analyses suggest fairly clear answers to the questions posed. First, frequent positive emotion in the aftermath of bereavement tended to predict positive outcomes even among people who reported higher levels of grief. Individuals who experienced more positive emotion 6-months post-loss tended to subsequently experience lower levels of depressed mood, elevated levels of social support receipt, and according to the regressions, tended to provide the most support to the community.

These effects for positive emotion were generally not moderated by levels of grief. In other words, the positive emotion effects were present both for people high and low on grief. The one exception was for depressed mood 6-months post-loss. In this case, the negative relation between positive emotion and depressed mood was strongest for people high on grief. This effect fits well with the Reich et al. (2003) Dynamic Model of Affect. This model suggests that the relation between positive and negative affect will become negative or more negative under conditions of distress. This model suggests that especially under conditions of distress, greater positive affect will tend to be associated with a reduction in negative affect. That type of pattern was observed here with depressed mood 6-months post-loss.

Some theorists have advocated a grief-work hypothesis emphasizing the value of negative emotions (for critical reviews see Bonanno, 2004; Bonanno & Field, 2001; Wortman & Silver, 1989). The grief work hypothesis suggests that people need to allow their negative experiences to be fully processed in order for recovery to take place.

The current study is instead consistent with theoretical perspectives portraying positive emotion as desirable even among people experiencing distress (e.g., Folkman & Moskovitz, 2000; Fredrickson, 1998; Ong, Bergemann, & Chow, 2010). Bowlby (1980) suggested that frequent positive emotions during grief can indicate pathology. The current study does not support this assertion. Admittedly, Bowlby may still be right in some cases because in exceptional cases, pathological inauthenticity and denial may manifest in positive emotions following distressing events, and, in those cases, Bowlby's description may be accurate. But the current analysis suggests that in typical cases, positive emotions predict good rather than pathological outcomes.

Also, in the current analysis, the presence of positive emotion and distressing grief was not associated with the personality trait of emotional instability. This finding goes against at least one possible pathological explanation for the simultaneous reporting of elevated positive affect and elevated distress. In particular, the simultaneous occurrence of positive affect and distress does not appear to represent underlying trait instability and a resulting tendency to vacillate between emotional states (consistent with Larsen et al., 2004). Of course, null findings are difficult to interpret. Possibly, the effect was null due to sampling error or a small effect size. Nonetheless, the finding does not support an emotional instability explanation for this finding.

Also, the current analysis did not provide evidence that positive emotion is associated with a different profile of grief subscale scores. In particular, positive emotion was not associated with differences in the grief subscales once the overall level of grief was controlled. If the groups were having qualitatively different grief experiences, then one could expect the groups to differ on some of the grief subscales. For example, it could have been hypothesized that those with more frequent positive emotion might have reported higher levels of a grief

symptom like yearning, which could potentially be associated with recalling positive events. The null finding here, suggests that the nature of the grief experience is not qualitatively different for people high versus low on positive emotion even though the overall levels or intensity of the grief does tend to differ depending on level of positive emotion. Admittedly, the grief subscales did have a lower alphas, and interpreting null effects can be tricky, so caution is warranted.

As with all studies, this one has limitations (McGrath, 1981). The sample was elderly, so generalization to younger bereaved samples must be made with caution. Furthermore, the measure of distress was self-reported and thus relies on accurate reporting by the respondents. Also, the analysis did not examine the sources of positive emotion among this sample, so does not test Folkman's (2008) assertion that meaning-focused coping facilitates positive emotion. Possibly most importantly, the data do not allow strong tests of causation. Any potential causative role for positive emotion could be best tested with an intervention study. Historically, intervention studies tend to be focused on reducing negative emotions, but more recently, some intervention studies have been designed specifically to increase well-being (Lyubomirsky, Sheldon, & Schkade, 2005). In a future study of bereavement, interventions promoting positive emotions (e.g., practicing gratitude, performing altruistic acts, or each day mentally reviewing three good events of the day and their causes; Seligman, Steen, Park, & Peterson 2006) could be provided to an experimental group. Admittedly, ethical concerns may arise if the control group was provided with no treatment, but also providing a more standard grief therapy to both groups could overcome this ethical difficulty.

Further studies could also build on the current findings by examining how positive emotions tend to be generated among people who are bereaved. Folkman and Moskovitz (2000) recommended studying sources of positive emotion among a variety of groups experiencing distress. An understanding of sources of positive emotion could help clinicians build positive emotional experiences among those who are distressed.

Conclusion

This study provides some clear answers about the combination of distressing grief and frequent positive emotion. In particular, positive emotion in grief stricken individuals does not seem to be reflective of underlying emotional instability or obvious pathology in the recovery process. Positive emotion in conjunction with grief predicts lower levels of depressed mood, more support from friends and family, and possibly more provision of support to the community. Although this study cannot provide strong evidence that positive emotion causes these outcomes, we can infer that positive emotion does not seem to inhibit them.

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Table 1
Descriptive Statistics for Major Variables

Timepoint	Variable	M	SD	n
Pre-bereavement	Age	70.25	6.86	250
	Education (years)	11.33	2.75	250
	Emotional instability	-.02	1.00	250
	Depression	.11	1.07	250
	Positive support from friends/relatives	.23	.96	250
	Support provision to community	13.46	6.07	250
At bereavement	Age	72.96	6.77	250
6 months post-loss	Depression	.43	1.23	250
	Positive support from friends/relatives	.39	.98	250
	Support provision to community	12.96	6.14	250
18 months post-loss	Depression	.11	1.07	205
	Positive support from friends/relatives	.51	.98	205
	Support provision to community	13.08	6.21	205
48 months post-loss	Depression	-.14	1.00	105
	Positive support from friends/relatives	.11	1.03	105
	Support provision to community	13.20	6.14	105

Table 2:
Classification: Both Groups High on Grief, but Differing on Frequency of Positive Emotion

	Frequent Positive Emotion		Infrequent Positive Emotion		p	d
	M	SD	M	SD		
Pre-bereavement	n = 40		n = 53			
Emotional instability	0.2936	0.97397	0.2087	0.92849	0.670	.09
Depression*	-0.0580	0.99515	0.5329	1.24338	0.015	.52
Positive support from friends/relatives	0.02449	0.82810	0.0138	1.07123	0.261	.01
Support provision to community*	15.6000	6.94595	12.9434	5.44347	0.041	.54
Six months post-loss	n = 40		n = 53			
Depression**	0.6606	1.01085	1.3851	1.16957	0.002	.66
Positive support from friends/relatives*	0.5910	0.72023	0.1129	1.13793	0.022	.50
Support provision to community***	15.3000	6.10254	11.3585	5.43172	0.001	.68
Eighteen months post-loss	n = 39		n = 47			
Depression**	0.2601	1.11736	0.9147	1.00227	0.009	.62
Positive support from friends/relatives*	0.7680	0.73724	0.1808	1.18017	0.012	.60
Support provision to community	14.6486	6.83218	12.4615	5.47649	0.127	.35
Forty-eight months post-loss	n = 20		n = 18			
Depression**	-0.3755	1.05063	0.7911	1.22177	0.003	1.02
Positive support from friends/relatives**	0.5795	0.60942	-0.2390	1.13998	0.010	.90
Support provision to community	16.0000	7.16199	12.2000	6.42036	0.093	.56

Note: * p <= .05, ** p <= .01, *** p <= .001

Table 3a
Regressions of depressed mood on positive emotion (6-months post-loss) and grief (6-months post-loss)

Dependent	Predictors			Results for Variables		Results for Blocks		
Depr. Mood	Block	Variable	Beta	p-value	ΔR^2	df	p-value
Prior to loss	1	Positive Emotion**	-.209	.002**	.067	2/247	<.001***
		Grief (total)	.097	.142			
	2	Pos. Emotion x Grief			.000	1/246	.768
6-months post-loss	1	Positive Emotion***	-.266	<.001***	.560	2/247	<.001***
		Grief (total)***	.591	<.001***			
	2	Pos. Emo. x Grief***	-.156	<.001***	.023	1/246	<.001***
18-months post-loss	1	Positive Emotion***	-.202	.001***	.297	2/202	<.001***
		Grief (total)***	.456	<.001***			
	2	Pos. Emotion x Grief			.012	1/201	.060
48-months post-loss	1	Positive Emotion**	-.258	.008**	.143	2/102	<.001***
		Grief (total)*	.218	.024*			
	2	Pos. Emotion x Grief			.007	1/101	.372

Note: * p <= .05, ** p <= .01, *** p <= .001
Note: Beta values reflect the regression equation after the last statistically significant block of variables had been added. Thus, no beta weight is shown for the interaction term when the addition of that block did not produce a significant change in R^2.

Table 3b
Regressions of received social support on positive emotion (6-months post-loss) and grief (6-months post-loss):

Dependent	Predictors		Results for Variables		Results for Blocks		
Rec. Supp.	Block	Variable	Beta	p-value	ΔR^2	df	p-value
Prior to loss	1	Female**	.175	.005**	.035	1/248	.003**
	2	Positive Emotion	.122	.063	.044	2/246	.003**
		Grief (total)*	-.132	.044*			
	3	Pos. Emotion x Grief			.001	1/245	.621
6-months post-loss	1	Female	.085	.168	.010	1/248	.107
	2	Positive Emotion***	.224	.001***	.072	2/246	<.001***
		Grief (total)	-.088	.177			
	3	Pos. Emotion x Grief			.000	1/245	.869
18-months post-loss	1	Female	.135	.047*	.022	1/203	.035*
	2	Positive Emotion**	.207	.004**	.058	2/201	.002**
		Grief (total)	-.080	.254			
	3	Pos. Emotion x Grief			.001	1/200	.698
48-months post-loss	1	Female	.166	.083	.029	1/103	.084
	2	Positive Emotion**	.267	.008**	.066	2/101	.028*
		Grief (total)	.068	.487			
	3	Pos. Emotion x Grief			.008	1/100	.347

Note: * p <= .05, ** p <= .01, *** p <= .001
Note: Beta values reflect the regression equation after the last statistically significant block of variables had been added. Thus, no beta weight is shown for the interaction term when the addition of that block did not produce a significant change in R^2.

Table 3c

Regressions of support provision on positive emotion (6-months post-loss) and grief (6-months post-loss)

Dependent	Predictors		Results for Variables		Results for Blocks		
Supp. Prov.	Block	Variable	Beta	p-value	ΔR^2	df	p-value
Prior to loss	1	Positive Emotion***	.246	<.001	.053	2/247	.001
		Grief (total)	.100	.132			
	2	Pos. Emotion x Grief			.001	1/246	.696
6-months post-loss	1	Positive Emotion***	.342	<.001	.104	2/247	<.001
		Grief (total)	.080	.215			
	2	Pos. Emotion x Grief			.004	1/246	.277
18-months post-loss	1	Positive Emotion**	.194	.007	.036	2/202	.024
		Grief (total)	.092	.203			
	2	Pos. Emotion x Grief			.007	1/201	.214
48-months post-loss	1	Positive Emotion***	.332	.001	.107	2/102	.003
		Grief (total)	.147	.131			
	2	Pos. Emotion x Grief			.002	1/101	.634

Note: * p <= .05, ** p <= .01, *** p <= .001

Note: Beta values reflect the regression equation after the last statistically significant block of variables had been added. Thus, no beta weight is shown for the interaction term when the addition of that block did not produce a significant change in R^2.

Table 4
Regressions of outcomes on positive affect 6-months post-loss, controlling for pre-loss measures
of the same outcomes and post-loss distress

Dependent And time post-loss	Block	Variable	Beta	p-value	ΔR^2	df	p-value
			Results for Variables		**Results for Blocks**		
Depression							
18-months	1	Depress. pre-loss**	.157	.009	.295	2/202	<.001
		Grief 6-months***	.441	<.001			
	2	Pos. Emo. 6-months**	-.170	.002	.026	1/201	.006
	3	Pos. Emotion x Grief			.012	1/200	.059
48-months	1	Depress. pre-loss***	.382	<.001	.243	2/102	<.001
		Grief 6-months	.163	.068			
	2	Pos. Emo. 6-months*	-.207	.021	.039	1/101	.021
	3	Pos. Emotion x Grief			.016	1/100	.130
Rec. Supp.							
18-months	1	Depress. pre-loss***	.316	<.001	.131	2/202	<.001
		Grief 6-months	-.062	.356			
	2	Pos. Emo. 6-months**	.178	.009	.029	1/201	.009
	3	Pos. Emotion x Grief			.000	1/200	.742
48-months	1	Depress. pre-loss***	.383	<.001	.142	2/102	<.001
		Grief 6-months	.099	.282			
	2	Pos. Emo. 6-months**	.275	.003	.071	1/101	.003
	3	Pos. Emotion x Grief			.004	1/100	.484
Supp. Prov.							
18-months	1	Depress. pre-loss***	.424	<.001	.199	2/202	<.001
		Grief 6-months	.063	.336			
	2	Pos. Emotion 6-months	.100	.133	.009	1/201	.133
	3	Pos. Emotion x Grief			.005	1/200	.256
48-months	1	Depress. pre-loss***	.391	<.001	.200	2/102	.001
		Grief 6-months	.153	.089			
	2	Pos. Emotion 6-months*	.239	.011	.050	1/101	.011
	3	Pos. Emotion x Grief			.002	1/100	.635

Note: * $p <= .05$, ** $p <= .01$, *** $p <= .001$
Note: Beta values reflect the regression equation after the last statistically significant block of
variables had been added. Thus, no beta weight is shown for the interaction term when the
addition of that block did not produce a significant change in R^2.

Table 5.

Regression of Pre-Loss Emotional Instability on Grief and Positive Emotion Six Months Post-Loss

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Dependent	Predictors		Results for Variables		Results for Blocks		
	Block	Variable	Beta	p-value	ΔR^2	df	p-value
Emo. Instab.	1	Positive Emotion	-.028	.669	.053	2/247	.001***
		Grief***	.219	.001***			
	2	Positive Emotion x Grief			.002	1/246	.525

Note: * p <= .05, ** p <= .01, *** p <= .001

Note: Beta values reflect the regression equation after the last statistically significant block of variables had been added. Thus, no beta weight is shown for the interaction term when the addition of that block did not produce a significant change in R^2.

Table 6.
Regression of positive emotion 6-months post-loss on grief total and grief subscales: Does positive emotion following bereavement indicate a qualitatively different grief profile?

Dependent	Predictors		Results for Variables		Results for Blocks		
	Block	Variable	Beta	p-value	ΔR^2	df	p-value
Pos. Emotion	1	Grief at 6 months***	-.351	<.001***	.123	1/248	<.001***
	2	Grief subscales			.036	6/242	.114