

When Distress Does Not Become Depression: Emotion Context Sensitivity and Adjustment to Bereavement

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Recent evidence suggests that the sensitivity of emotion responses to changing context may be a key element of psychological adjustment and psychopathology (Bonanno et al., 2007; Rottenberg, Kasch, Gross, & Gotlib, 2002). However, there have been no previous investigations to examine emotion context sensitivity and adjustment following stressful life events. This investigation addressed this deficit in a sample of middle-aged bereaved adults ($N = 48$) whose emotion responses were measured as they described loss and non-loss-related events during a laboratory interview 4 months after the death of their spouse or child. Symptoms of depression were assessed using structured clinical interviews at 4 and 18 months postloss. Although positive emotions were beneficial regardless of context, context sensitivity for negative emotions at 4 months predicted fewer depression symptoms at 18 months. These findings suggest that the capacity to shift negative emotion responses according to changing context may differentiate those individuals who will show improvements in depression symptoms over time from those who will show chronic impairments. Implications for future research and clinical intervention are discussed.

Keywords: emotion, bereavement, depression, context sensitivity, adjustment

Why do some people struggle with anxiety, depression, and other emotional problems following significant stressors while others do not? There is a widening gap in the literature when it comes to discriminating between individuals experiencing normative levels of distress following aversive events from those whose responses signal the development of serious impairments requiring treatment (Monroe & Reid, 2009). One potentially fruitful method for differentiating these groups may be the examination of deficits in emotion and emotion regulation as possible underlying factors in psychopathology (see Kring, 2008). Of particular relevance is the capacity for an individual to shift emotion responses according to changing contextual (i.e., interpersonal or environmental) demands, known as emotion context sensitivity (Coifman & Bonanno, 2009). This particularly compelling aspect of emotion regulation has been implicated in the development of psychopathology (Buss, Davidson, Kalin, & Goldsmith, 2004; Gehricke & Shapiro, 2000; Larson, Nitschke, & Davidson, 2007), most notably with deficits attributed to major depressive disorder (e.g., Rottenberg & Gotlib, 2004; Rottenberg, Gross, & Gotlib, 2005).

During bereavement, although many individuals experience only minor perturbations in functioning, some do struggle, showing significant disruptions in functioning for considerable time following the loss (Bonanno, 2004, 2005). Previous work examining emotion responses following extreme stressors, including bereavement, has suggested an important link between contextually appropriate and flexible emotion responses and positive outcomes (e.g., Bonanno, Papa, Lalande, Westphal, & Coifman, 2004; Coifman, Bonanno, & Rafaeli, 2007). However, no prior research has specifically examined the role of emotion context sensitivity in adjustment to bereavement. Moreover, no research has examined the role of early emotion responses to loss and nonloss events as a means of discriminating between normative distress and impairments that signal the development of psychopathology. In order to begin to address these deficits, the current investigation examined how individual differences in emotion responses across varied idiographic contexts predicted the course of adjustment in a sample of middle-aged adults following the untimely death of their spouse or child.

Patterns of Adjustment to Loss

Abundant research has demonstrated an association between stressful life events and the development of significant psychopathology (Hammen, 2005), and in particular between acute, aversive events involving interpersonal loss and the development of depression (Kessler, 1997). Little is currently known, however, about the mechanisms that differentiate normative distress responses to loss events from those that signal the development of serious pathology (Monroe & Reid, 2009).

Longitudinal studies of grief course suggest that adjustment to loss can be characterized by several distinct trajectories of outcome (Bonanno, 2004, 2005). First, many bereaved people

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(35% to 60%) experience only minor disruptions in functioning within the weeks following the loss and otherwise evidence a stable trajectory of healthy adjustment across time, or resilience (Bonanno, 2004). All other bereaved individuals tend to experience more pronounced disruptions in functioning, such as threshold levels of depression, in the early months following the loss. Of these more depressed individuals, some will move toward a *recovery* trajectory characterized by a gradual arc to baseline levels of functioning within 1 to 2 years. Recovering individuals may constitute the majority of those initially symptomatic, usually about 15% to 35% of bereaved samples. However, a smaller group of those initially experiencing elevated depression symptoms during bereavement, usually 10% to 15% of the entire sample, continue to suffer persistent grief and depression, and ultimately chronic disturbances in functioning over the long term (Bonanno, Moskowitz, Papa, & Folkman, 2005; Bonanno et al., 2002).

Emotion and Context During Bereavement

Traditional theories of coping with loss emphasized the “work” of mourning, which included extensive processing of grief-related negative emotions (W. Stroebe & Stroebe, 1987) but rarely mentioned positive emotions (Bonanno & Kaltman, 1999). As researchers began to study bereavement, however, it became clear that grief involves a range of emotions, including sadness but also other negative (e.g., anger, guilt, and fear) and positive emotion (e.g., happiness, amusement, and affection; Bonanno, Goorin, & Coifman, 2008). Moreover, longitudinal investigations tended to contradict traditional theory by demonstrating that the increased experience and expression of negative emotions in the early months of bereavement predicted a more protracted grief course, whereas positive emotions were associated with a less protracted grief course (Bonanno & Keltner, 1997; Bonanno et al., 2005; Keltner & Bonanno, 1997).

Although these early studies appeared to supplant traditional bereavement theories with a markedly simpler perspective on emotion, the theoretical foundation of this research failed to incorporate the potentially important role of context. Contemporary conceptualizations of emotion have often described the critical role that context plays in determining adaptive emotional responding (Cole, Michel, & Teti, 1994; Davidson, Jackson, & Kalin, 2000). It has been argued (Tooby & Cosmides, 1990) that emotions evolved to solve specific problems in specific situations. As such, what is contextually appropriate can be determined by both environmental demands as well as individual needs.

The repeated failure to respond in a manner that is sensitive to context is often thought to be a clear sign of emotion dysregulation (Cole et al., 1994) and may be implicated in a number of disorders of emotion regulation (see for reviews Davidson et al., 2000; Kring, 2008). Indeed, dysfunctional emotion responses have been defined as those that occur outside their “typical incentive contexts” (Goldsmith & Davidson, 2004, p. 363), such that the response extends beyond the demands of the situation or, alternatively, is insufficient or inappropriate to current conditions. For example, recent work by Buss et al. (2004) demonstrated that children who showed extremely high levels of fear reactivity in nonthreatening con-

ditions were most at risk for developing anxiety-related behavioral problems.

There is now a small body of work demonstrating the link between context-insensitive emotion responses and depression, anxiety, and other emotion disorders (Gehricke & Shapiro, 2000; Larson et al., 2007; Rottenberg & Gotlib, 2004; Rottenberg et al., 2005; for a review see Coifman & Bonanno, 2009). For instance, in depression, emotion responses are thought to be “inflexible” (Rottenberg et al., 2002, p. 136) and may be part of a broad pattern of unresponsiveness indicating a failure to shift emotion according to changing context or conditions. Importantly, there is also evidence to suggest that the ability to modulate emotion in a manner sensitive to context may be predictive of recovery from these disorders. For example, work by Rottenberg et al. (2002) demonstrated the importance of context-sensitive emotion responses in predicting improvements in individuals with clinically significant symptoms of depression. Their investigation demonstrated that depressed participants who were more responsive to both sad and amusing contexts showed some relief from symptoms 6 months later.

The dynamics of context-sensitive emotional responding suggest an obvious application to the task of adjustment to bereavement. Although overall levels of negative grief-related emotion typically predict more protracted grief (Bonanno & Keltner, 1997), theories of negative emotions such as anger, disgust, sadness, and fear tend to emphasize their functional relevance within specific contexts (e.g., Bonanno et al., 2008; Rozin & Fallon, 1987). For example, anger is associated with contexts when individuals feel they can ameliorate aspects of a distressing event caused by another person (Berkowitz & Harmon-Jones, 2004). During bereavement, this might occur when negotiating an insurance claim, pursuing a law suit, or defending oneself against inappropriate harassments. By contrast, sadness is functionally relevant in situations that trigger reflection and reevaluation (e.g., Storbeck & Clore, 2005). In addition, sadness can evoke short-term empathic responses from others (Bonanno, 2009). During bereavement these functions would facilitate acceptance and processing of the loss and generate helping responses from key others (Bonanno et al., 2008). Thus together, negative emotions, such as sadness or anger, may serve contextually specific functions with obvious adaptive value when adjusting to the loss of a loved one.

Context-sensitive emotion responding also requires the ability to modulate emotion from one context to another. During bereavement, this might involve disengaging from loss-related negative emotions evoked in one context in order to shift flexibly the experience and expression of emotion in other contexts. For example, it may be necessary to temporarily set aside sadness in order to celebrate a child’s birthday or to manage guilt and anger when requesting assistance from others. This form of context sensitivity is key to maintaining relationships, working cooperatively, and caring for others (Keltner & Kring, 1998), each an essential feature in the adjustment to the loss of a loved one (Bonanno & Kaltman, 1999; M. S. Stroebe & Schut, 1999).

In contrast to the context-specific effects for negative emotions, functional theories of positive emotion place less emphasis on context, and they even suggest that positive emotions may be

adaptive irrespective of context (e.g., Fredrickson, 2001).¹ There is considerable evidence demonstrating the broad benefits of positive emotion both in times of low environmental demand and in times of heightened stress, most notably because of the key role of positive emotion in maintaining interpersonal relationships and in regulating internal states (e.g., Fredrickson & Joiner, 2002; Keltner & Bonanno, 1997; Papa & Bonanno, 2008). In the specific context of bereavement, genuine positive emotion expressions have been linked to decreased distress but also to improved social relationships and positive responses from strangers (Bonanno & Keltner, 1997; Keltner & Bonanno, 1997). Together these data suggest an important benefit of positive emotion during bereavement that may uniquely differentiate it from negative emotion.

The Current Investigation

In this investigation we examined the role of emotion and context as part of a longitudinal study of adjustment to bereavement in a community sample. Given the potential importance of non-loss-related emotion, we examined participants' emotional responses in an idiographic laboratory interview that focused on the loss itself and on recent positive and negative non-loss-related events. Because contemporary emotion theorists commonly understand emotion responses as manifesting on multiple dimensions encompassing experiential, behavioral, and physiological components (Ekman, 1992; Mauss, Levenson, McCarter, Wilhelm, & Gross, 2005), we measured participants' emotion responses during the interview on two dimensions: repeated affective self-report and coded facial displays of emotion.

We chose to employ idiographic methodology to assess emotion responses because of the high degree of ecological validity (Barlow & Nock, 2009). Idiographic methods are common in social and personality research (Lüdtke & Trautwein, 2007), research on emotion in clinical samples (Dougherty et al., 2004; Zubieta et al., 2003), and investigations of responses to distressing events, most notably in the large body of literature on written emotional expression (Pennebaker, 1997). However, there are important limitations to this approach that must be acknowledged. In particular, there is only limited control over the source of the emotional response, a potential threat to internal validity. Nevertheless, idiographic methods offer a greatly enhanced likelihood of triggering spontaneous emotion, and there is a compelling body of prior evidence demonstrating that emotion elicited idiographically is robustly predictive of outcome (Keltner, Kring, & Bonanno, 1999). Moreover, one important utility of the idiographic interview method is that it allows for emotion responses to occur in an interpersonal setting, thereby maximizing the opportunity for measurement of authentic facial expressions, a key component of emotion response behavior and a potentially critical factor in adjustment (Keltner et al., 1999).

To examine how positive and negative emotion in each context were associated with longitudinal adjustment, we assessed depressive symptoms using structured clinical interviews concurrent with the idiographic interview at 4 months postloss and again at 18 months postloss. We were especially interested in individuals who evidenced elevated depression symptoms at the 4-month point, as they were likely to progress along one of two possible longitudinal trajectories. Prior evidence has demonstrated that these individuals will either eventually return to baseline levels of functioning

(demonstrating a decrease in symptoms) or continue to evidence elevated symptoms indicative chronic dysfunction (Bonanno, 2004, 2005).

In order to assess how emotion context sensitivity relates to adjustment, we examined emotion responses across interview segments in three ways. First, we examined levels of emotion responses in each interview topic by both dimension of emotion (affect or facial behavior) and valence (negative and positive; e.g., negative facial behavior in the loss topic). Second, we examined the ability to shift emotion responses across the nonloss topics (e.g., change in negative facial behavior from the negative nonloss topic to the positive nonloss topic). Third, we examined the role of emotion responses to non-loss-related events as unique predictors of longitudinal adjustment by controlling for loss-related emotion.

In developing hypotheses for this investigation we took into account the literature, reviewed above, suggesting that context specificity is likely to be most important for negative emotion. On the basis of these considerations, we formalized the following predictions: First, we anticipated that negative emotional responses would be functionally relevant and therefore associated with better long-term adjustment (i.e., lower depression symptoms at 18 months postloss) only for bereaved individuals with initially elevated depression symptoms and only when occurring in a negatively valenced context. According to this prediction, for example, individuals with high initial depression symptoms should have reduced symptoms at 18 months postloss if they responded with negative emotion in the negative nonloss topic or the loss topic. Individuals with high initial depression symptoms who failed to show this response or who had negative emotion in the positive nonloss context should evidence continually elevated symptoms at 18 months postloss. We did not anticipate associations between emotion, context, and adjustment in individuals with low initial symptoms, as resilient individuals are already at the symptom floor and rarely show changes in symptoms over time (Bonanno, 2004, 2005).² Second, given the large body of evidence demonstrating the global benefits of positive emotion during bereavement and other stressful contexts, we anticipated that positive emotions would generally predict reduced depression symptoms for bereaved individuals with initially elevated symptoms, regardless of interview context. Third, we anticipated that individuals with elevated depression symptoms at 4 months postloss who were able to alter their emotional responses according to contextual changes (i.e., shifting from negative emotion in the negative nonloss topic to positive emotion in the positive nonloss topic) would evidence reduced symptoms of depression at 18 months postloss. Finally, we anticipated that non-loss-related emotion responses would be uniquely predictive of improvements in long-term depression

¹ Although there is some new evidence that contradicts this notion in specific socially stigmatizing contexts (e.g., recall of childhood sexual abuse; Bonanno et al., 2007), these contexts were not deemed relevant to this investigation.

² It is likely that context-sensitive emotional responses would still be functionally adaptive in resilient individuals, though not necessarily associated with longitudinal measures of depression symptoms (as their symptom levels are initially low and stay low). Although this investigation did not assess these more proximal variables relevant to functioning in daily life, they present an important area for future research.

symptoms when controlling for emotion responses during the loss topic.

Method

Participants and Procedure

Information about the study was made available to potential participants living in the Washington, DC metropolitan area by sending letters describing the study to recently bereaved individuals listed in public obituaries and to individuals likely to have contact with bereaved individuals (e.g., clergy). Letters encouraged those interested to contact the researchers by phone or mail.

Initial (T1) data were collected from participants at 4 months postloss in order to maximize individual differences in emotion responses. In the first months of bereavement even the most resilient individuals will experience some intense emotion and intrusive preoccupation related to the loss (Bonanno, Wortman, & Nesse, 2004). However, after 4 months, although considerable numbers of bereaved individuals are still actively coping with the upheaval of the loss, clear individual differences have emerged (Bonanno & Kaltman, 2001). T1 data consisted of a laboratory session that included both a structured clinical interview (Structured Clinical Interview for *DSM-III-R*; SCID; Spitzer, Williams, Gibbon, & First, 1990) assessing symptoms of major depressive disorder and the idiographic interview during which measures of self-reported affect and facial behavior were obtained. Longitudinal follow-up (T2) data were collected from participants at approximately 18 months postloss, as differences in long-term outcome patterns are typically evident by this time (Bonanno & Kaltman, 2001). T2 data consisted of a laboratory session that included only the SCID. Participants were paid \$60 for each session. The sample consisted of 48 bereaved individuals (conjugal bereaved $n = 35$; parentally bereaved $n = 13$) who completed assessments at both time points. The sample was on average 51.21 years old ($SD = 7.80$), 58% female and 32% male, and primarily Caucasian (90%).

Structured Clinical Interview for Depression Symptoms

Participants were asked a series of questions corresponding to the symptoms for major depressive disorder (nine items; $\alpha = .92$) in the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV-TR*; American Psychiatric Association, 2000). Each symptom was coded as present or absent following the SCID format (Spitzer et al., 1990). Interviewers received extensive training in the procedures but were blind to the goals and hypotheses of the current study. For computation of interrater reliability, each interviewer coded symptoms from five additional randomly selected videotapes. Interrater reliability at the symptom level was almost perfect (average $\kappa = .97$).

Semistructured Narrative Interview

After a short break, the interviewer read a script informing participants that they would be asked to speak in an open-ended manner about several different topics and that the best way to approach the task was to "try to relate as openly as possible

whatever comes to mind." They were informed that the interviewer would ask only clarifying questions. Interviewers were trained to use a standardized set of clarifying questions and prompts for more information. Because this investigation was part of a broader investigation of bereavement, participants spoke at greater length about their loss experience relative to the nonloss topics. After each topic, participants completed a brief measure of affective experience during that topic.

Loss topic. The first topic pertained to the participants' relationship with the deceased. Participants were asked to describe their relationship to their deceased spouse or child. When participants indicated their readiness, the 6-min speaking period began.

Current life topic. The next topic pertained to the participants' current view of their life since the loss. Data from this topic have been reported in detail elsewhere (Coifman, Bonanno, Ray, & Gross, 2007) and are not discussed in the current study.

Nonloss topics. For the next two topics, participants were instructed to speak about negative and then positive events unrelated to the loss. For the negative nonloss topic, participants were instructed to describe a recent and distressing negative life event that had occurred within the previous month and was unrelated to the loss. Participants were allowed time to identify a negative event and then began the 2-min speaking period. This procedure was repeated for the positive nonloss topic. However, participants were instructed to describe a recent and enjoyable positive life event, unrelated to the loss, that had occurred within the previous month.

As a check for possible asymmetries in idiographic content, four master's-level students blind to the hypotheses coded interview audio tracks for the type of event described. All participants in the loss topic described bereavement-related experiences. None of the participants described bereavement experiences in the nonloss conditions. For the nonloss topics, the majority of participants described interpersonal events with friends or family (i.e., conflict events in the negative nonloss topic, 80%; pleasurable experiences in the positive nonloss topic, 94%). There were no significant associations between type of nonloss event and either emotional responses or depression symptoms at T1. Depression symptoms at T2 were significantly higher in participants who described interpersonal conflict events in the negative nonloss topic. However inclusion of type of nonloss topic in the analyses for emotion context sensitivity (described below) had no meaningful impact on the results. We did not consider this variable further.

Emotion Responses

Given the growing body of evidence linking specific deficits in the modulation of emotion based on valence (i.e., negative or positive) with emotion disorders such as depression (Kring, 2008), we measured affective and behavioral responses only along these two dimensions. These two global dimensions of emotion have been shown to be effective in numerous investigations of emotion during bereavement (e.g., Bisconti, Bergeman, & Boker, 2004; Coifman, Bonanno, & Rafaeli, 2007).

Negative and positive affect. After each interview topic, participants were asked to rate "how often" during the topic (0 = *not at all* to 7 = *almost constantly*) they had experienced four negative emotions (fear, guilt, distress, and sadness) and four positive emotions (happiness, enjoyment, relief, and amusement). These

self-ratings were then aggregated for an overall negative affect score for each interview context (loss topic, $\alpha = .73$; negative nonloss topic, $\alpha = .75$; positive nonloss topic, $\alpha = .83$) and an overall positive affect score for each interview context (loss topic, $\alpha = .74$; negative nonloss topic, $\alpha = .76$; positive nonloss topic, $\alpha = .78$). In previous studies (Coifman, Bonanno, & Rafaeli, 2007) this measure has proved to be a reliable indicator of subjective emotional experience. In addition, in order to do the analysis for change across topics, we computed two change scores in negative and positive affective reports by subtracting positive nonloss topic levels from negative nonloss topic levels.

Negative and positive facial behavior were coded by four master's-level graduate students in clinical psychology. Coders were blind to the hypotheses and specifics of this investigation and scores were averaged for each participant. Coders did not receive any specific training and were instructed only to observe the expressions of the individual and rate the degree of negative and degree of positive expressions by topic. Coders viewed each participant on a 17-in. monitor without sound and rated each participant's facial expressions on a 7-point Likert scale for degree of negative emotional expressiveness and degree of positive emotional expressiveness. Overall coder agreement was satisfactory (intra-class correlation coefficient = .77) and did not differ by valence. Final scores were calculated by averaging across the four coders for each participant in order to create two valenced scores, positive and negative facial behavior, for each of the three interview topics. In addition, in order to do the analysis for change across topics, we computed two change scores in coded negative and positive facial behavior by subtracting positive nonloss topic levels from negative nonloss topic levels. This scale has been previously used as a reliable assessment of emotional expression (see Bonanno, Papa, et al., 2004). Because of equipment malfunction, videos for eight subjects could not be coded. However, there was no significant difference in symptoms or emotion responses between those participants who had usable video footage versus those who did not.

Results

Preliminary Analyses

Highly consistent with other community samples of bereaved adults (Bonanno & Kaltman, 2001), 10% of participants at T1 and 12% at T2 met diagnostic criteria for major depressive disorder. However, an additional 14% of participants at T1 and 2% at T2 met criteria for subthreshold depression (endorsement of either

persistent depressed mood or anhedonia without sufficient additional symptoms to meet diagnostic criteria; see Fergusson, Horwood, Ridder, & Beautrais, 2005) and therefore were also likely experiencing significant deficits in functioning (Gotlib, Lewinsohn, & Seeley, 1995). Overall, total depression symptoms decreased marginally from T1 ($M = 1.70$, $SD = 1.94$) to T2 ($M = 1.32$, $SD = 2.08$), $F(1, 47) = 3.41$, $p = .07$.

As can be seen in Table 1, participants' emotional responses conformed to an expected pattern across interview topics. Participants showed high levels of both negative and positive emotion during the loss topic, which is consistent with previous investigations of bereavement (Bonanno & Keltner, 1997). Emotion responses in the nonloss topics were consistent with the topic content (e.g., higher negative affect and facial behavior in the negative nonloss topic and higher positive affect and facial behavior in the positive nonloss topic). A 2 (topic) \times 2 (valence) \times 2 (emotion response) analysis of variance confirmed the variation in emotion responses across nonloss topics in a three-way interaction, $F(1, 39) = 30.35$, $p < .001$. Subsequent pairwise comparisons confirmed that the idiographic nature of the nonloss topics resulted in an effective emotion manipulation.

Examination of the association between different dimensions of emotion indicated a moderate degree of coherence between affect and facial emotion by topic (e.g., negative affect and negative facial behavior within the negative nonloss topic, $r = .35$, $p < .05$; positive affect and positive facial behavior within the loss topic, $r = .40$, $p < .01$). These associations are consistent with previous evidence demonstrating coherence across channels of emotion (Bonanno & Keltner, 2004; Mauss et al., 2005).

Prospective Prediction of T2 Depression: Emotion Response by Interview Context

The primary goal of this research was to determine whether context-sensitive emotion early in bereavement (4 months post-loss) would predict a decrease in depression symptoms at 18 months postloss. We did not anticipate these effects to emerge for bereaved individuals with low initial symptoms because resilient individuals show little variability over time. Statistically, then, we expected to observe significant interactions between context-sensitive responding (i.e., specific emotion response variables by topic) and initial (T1) depression symptoms when predicting T2 depression symptoms. To test for these interactions, we systematically performed a series of hierarchical regression analyses following the same procedure each time. In each analysis, we regressed type of emotion response (affect or facial behavior) by

Table 1
Participant Behavior During the Laboratory Interview

| Interview behavior | Loss topic | | Negative nonloss topic | | Positive nonloss topic | |
|--------------------------|------------|-----------|------------------------|-----------|------------------------|-----------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Negative affect | 2.78 | 1.30 | 2.72 | 1.53 | 1.51 | 0.70 |
| Positive affect | 3.20 | 1.41 | 1.86 | 1.11 | 3.97 | 1.42 |
| Negative facial behavior | 3.36 | 1.26 | 3.27 | 1.11 | 3.04 | 1.02 |
| Positive facial behavior | 3.34 | 1.42 | 2.78 | 1.26 | 3.09 | 1.22 |

Table 2
Predicting T2 Depression Symptoms With Emotion Responses Across Contexts

| Variable | <i>B</i> | <i>SE B</i> | β | <i>sr</i> ² | <i>R</i> ² | ΔR^2 |
|--|----------|-------------|---------|------------------------|-----------------------|--------------|
| Loss topic (LT) analysis for affect | | | | | | |
| Step 1 | | | | | .55 | — |
| T1 depression symptoms | 0.77*** | 0.11 | 0.72 | .48 | | |
| LT negative affect | 0.09 | 0.17 | 0.06 | .00 | | |
| LT positive affect | -0.05 | 0.16 | -0.03 | .00 | | |
| Step 2 | | | | | .56 | .01 |
| T1 depression symptoms | 0.76* | 0.33 | 0.71 | .06 | | |
| LT negative affect | 0.00 | 0.24 | 0.00 | .00 | | |
| LT positive affect | 0.06 | 0.20 | 0.04 | .00 | | |
| LT Negative Affect \times T1 Depression | 0.06 | 0.08 | 0.23 | .01 | | |
| LT Positive Affect \times T1 Depression | -0.07 | 0.08 | -0.22 | .01 | | |
| <i>F</i> (5, 42) = 10.62, <i>p</i> < .0001 | | | | | | |
| Loss topic (LT) analysis for facial behavior | | | | | | |
| Step 1 | | | | | .55 | — |
| T1 depression symptoms | 0.69*** | 0.11 | 0.71 | .48 | | |
| LT negative facial behavior | -0.28 | 0.19 | -0.18 | .03 | | |
| LT positive facial behavior | -0.12 | 0.17 | -0.09 | .01 | | |
| Step 2 | | | | | .70 | .16*** |
| T1 depression symptoms | 3.21*** | 0.63 | 3.29 | .23 | | |
| LT negative facial behavior | 0.21 | 0.21 | 0.13 | .01 | | |
| LT positive facial behavior | 0.08 | 0.17 | 0.06 | .00 | | |
| LT Negative Facial Behavior \times T1 Depression | -0.51*** | 0.14 | -2.08 | .13 | | |
| LT Positive Facial Behavior \times T1 Depression | -0.22** | 0.07 | -0.69 | .09 | | |
| <i>F</i> (5, 34) = 15.50, <i>p</i> < .0001 | | | | | | |
| Negative nonloss topic (NT) analysis for affect | | | | | | |
| Step 1 | | | | | .54 | — |
| T1 depression symptoms | 0.79*** | 0.12 | 0.74 | .47 | | |
| NT negative affect | -0.01 | 0.15 | -0.01 | .00 | | |
| NT positive affect | 0.01 | 0.20 | 0.00 | .00 | | |
| Step 2 | | | | | .55 | .01 |
| T1 depression symptoms | 0.68* | 0.31 | 0.64 | .05 | | |
| NT negative affect | -0.11 | 0.20 | -0.08 | .00 | | |
| NT positive affect | 0.05 | 0.28 | 0.03 | .00 | | |
| NT Negative Affect \times T1 Depression | 0.05 | 0.07 | 0.19 | .01 | | |
| NT Positive Affect \times T1 Depression | -0.02 | 0.14 | -0.04 | .00 | | |
| <i>F</i> (5, 42) = 10.16, <i>p</i> < .0001 | | | | | | |
| Negative nonloss topic (NT) analysis for facial behavior | | | | | | |
| Step 1 | | | | | .58 | — |
| T1 depression symptoms | 0.61*** | 0.12 | 0.62 | .30 | | |
| NT negative facial behavior | -0.31 | 0.24 | -0.18 | .02 | | |
| NT positive facial behavior | -0.50* | 0.22 | -0.33 | .06 | | |
| Step 2 | | | | | .74 | .16*** |
| T1 depression symptoms | 2.45*** | 0.51 | 2.51 | .18 | | |
| NT negative facial behavior | 0.08 | 0.27 | 0.05 | .00 | | |
| NT positive facial behavior | 0.04 | 0.21 | 0.03 | .00 | | |
| NT Negative Facial Behavior \times T1 Depression | -0.25* | 0.09 | -1.13 | .05 | | |
| NT Positive Facial Behavior \times T1 Depression | -0.45*** | 0.10 | -0.94 | .17 | | |
| <i>F</i> (5, 34) = 19.63, <i>p</i> < .0001 | | | | | | |
| Positive nonloss topic (PT) analysis for affect | | | | | | |
| Step 1 | | | | | .58 | — |
| T1 depression symptoms | 0.76*** | 0.11 | 0.71 | .45 | | |
| PT negative affect | 0.09 | 0.31 | 0.03 | .00 | | |
| PT positive affect | -0.30* | 0.15 | -0.20 | .04 | | |
| Step 2 | | | | | .75 | .17*** |
| T1 depression symptoms | 1.56*** | 0.32 | 1.46 | .14 | | |
| PT negative affect | -0.49 | 0.32 | -0.16 | .02 | | |
| PT positive affect | 0.40* | 0.17 | 0.27 | .03 | | |
| PT Negative Affect \times T1 Depression | 0.26* | 0.13 | 0.53 | .02 | | |
| PT Positive Affect \times T1 Depression | -0.35*** | 0.07 | -1.30 | .16 | | |
| <i>F</i> (5, 42) = 25.36, <i>p</i> < .0001 | | | | | | |

Table 2 (continued)

| Variable | <i>B</i> | <i>SE B</i> | β | <i>sr</i> ² | <i>R</i> ² | ΔR^2 |
|--|----------|-------------|---------|------------------------|-----------------------|------------------|
| Positive nonloss topic (PT) analysis for facial behavior | | | | | | |
| Step 1 | | | | | .54 | — |
| T1 depression symptoms | 0.73*** | 0.12 | 0.75 | .48 | | |
| PT negative facial behavior | -0.35 | 0.24 | -0.19 | .03 | | |
| PT positive facial behavior | -0.09 | 0.21 | -0.06 | .00 | | |
| Step 2 | | | | | .60 | .06 [†] |
| T1 depression symptoms | 2.39** | 0.81 | 2.46 | .10 | | |
| PT negative facial behavior | -0.02 | 0.29 | -0.01 | .00 | | |
| PT positive facial behavior | 0.24 | 0.25 | 0.15 | .01 | | |
| PT Negative Facial Behavior \times T1 Depression | -0.30 | 0.17 | -1.21 | .04 | | |
| PT Positive Facial Behavior \times T1 Depression | -0.24* | 0.11 | -0.61 | .06 | | |
| <i>F</i> (5, 34) = 10.32, <i>p</i> < .0001 | | | | | | |

Note. The dependent variable in all analyses was T2 depression symptoms. T1 = 4 months postloss; T2 = 18 months postloss.

[†] *p* < .07. * *p* < .05. ** *p* < .01. *** *p* < .001.

topic (loss topic, negative nonloss topic, or positive nonloss topic) onto T2 depression symptoms, adding the appropriate interaction terms in the second step. For example, in Step 1, we entered T1 depression symptoms, and positive *and* negative levels for either affect *or* facial behavior for one topic. In Step 2, we added interaction terms consisting of the same emotion variables with T1 depression symptoms. Table 2 lists all steps in each analysis. Significant interactions were graphed at 1 *SD* above and below the mean for both T1 depression symptoms and emotion response behaviors, in order to plot the predicted values.

Consistent with our hypotheses, there were a number of significant interactions demonstrating the importance of context-sensitive responses on both dimensions of emotional responding (facial behavior and affective experience). First, the benefits of displaying negative emotion in a negative context were evident in both the loss and negative nonloss topics. Here, high levels of negative facial behavior predicted a decrease in depression symptoms at T2 for those with elevated symptoms at T1 (see Figures 1A and 1B). In addition, high levels of positive affect and positive facial behavior in the positive nonloss topic also predicted a decrease in depression symptoms at T2 (see Figures 1C and 1D). These responses, in particular, demonstrate the importance of sensitivity to contextual demands that require disengagement from prior negative emotion and movement toward positive emotion. Moreover, in accord with our predictions, positive emotion evidenced contextually independent benefits, as high levels of positive facial behavior in both the loss and negative nonloss topics also predicted a decrease in depression symptoms at T2 for those with elevated depression symptoms at T1 (see Figures 1E and 1F). Finally, there was evidence for the costs of emotion context insensitivity in that individuals reporting high levels of negative affect in the positive nonloss topic had higher symptom levels at T2 (see Figure 1G). We did not find any other significant effects for negative or positive affect in either the loss or the negative nonloss topic.

Prospective Prediction of T2 Depression: Emotion Response Change Across Contexts

We also examined emotion context sensitivity by measuring the change in emotion responses from the negative nonloss topic to the

positive nonloss topic. We computed change scores in emotion responses (affect or facial behavior) by subtracting positive nonloss topic levels from negative nonloss topic levels. Again, we examined these variables using hierarchical regression, following a similar procedure to that described above, with the exception that change scores for negative and positive affect *or* facial behavior were used. Table 3 displays all steps of each analysis. The pattern of findings was compatible with the analyses described above and demonstrated that contextually sensitive change in emotion responses predicted a decrease in depression symptom levels at T2 for individuals with elevated T1 symptoms. For example, participants with high initial symptoms of depression had fewer symptoms at T2 if they increased positive affect from the negative nonloss topic to the positive nonloss topic. Increased positive facial behavior and decreased negative facial behavior showed a similar association with T2 symptoms. Together these analyses confirmed our hypotheses that the ability to shift emotion responses according to context predicts improvement from initial bereavement-related depression symptoms.

Controlling for Loss Emotions: The Unique Effect of Nonloss Context Sensitivity

A final set of analyses examined whether non-loss-related emotion responses carried predictive value above and beyond loss-related emotion. Specifically, we reran each of the hierarchical regression analyses involving the negative and positive nonloss topics but included mean levels of loss-topic negative and positive affect or facial behavior in the first step of each regression. In each instance, the loss-related emotion did not enter significantly into the final model and only one of the effects described previously was altered; the interaction between T1 depression and negative affect reported during the positive nonloss topic was no longer significant when controlling for affect reported during the loss topic.

Discussion

In this investigation, we examined emotion responses early in bereavement across multiple contexts and how these responses differentiated a longitudinal pattern of improved adjustment in a

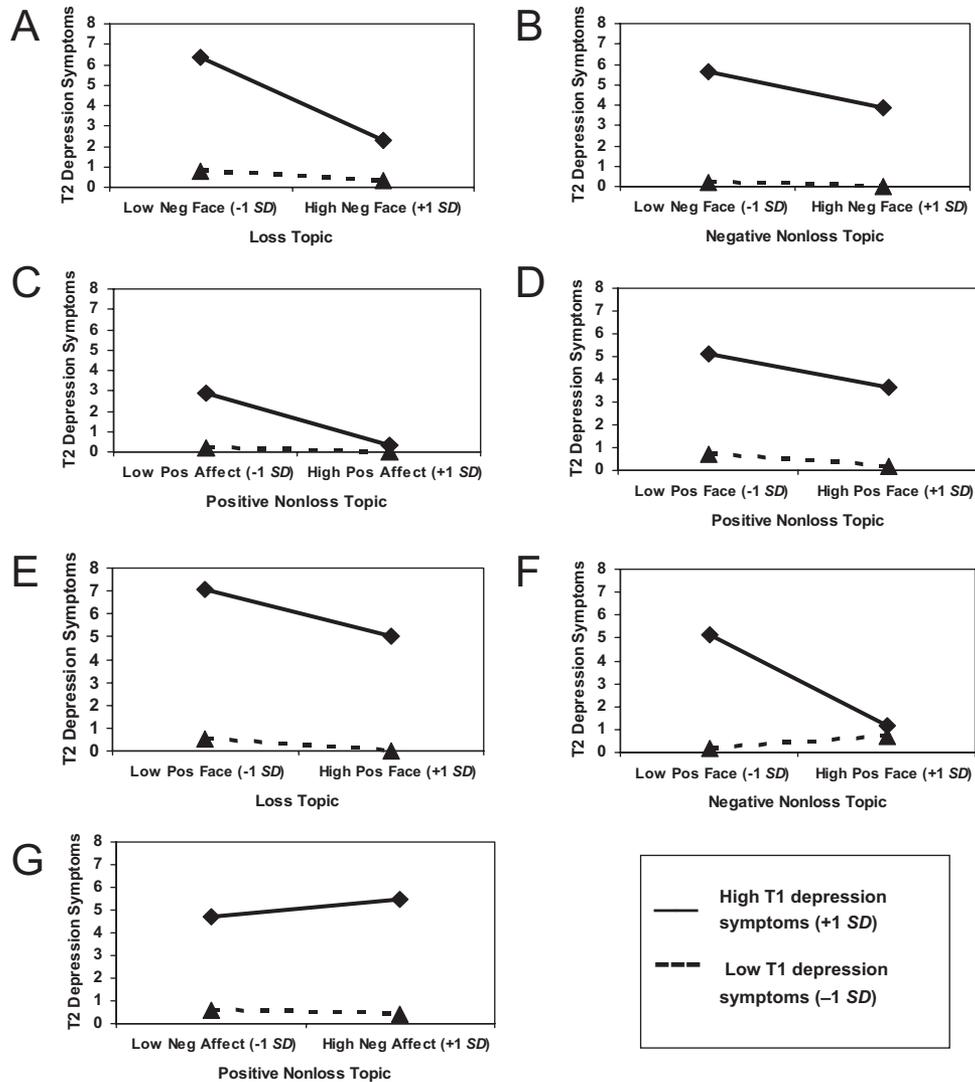


Figure 1. A: Negative facial behavior predicts T2 depression symptoms in the loss topic. B: Negative facial behavior predicts T2 depression symptoms in the negative nonloss topic. C: Positive affect predicts T2 depression symptoms in the positive nonloss topic. D: Positive facial behavior predicts T2 depression symptoms in the positive nonloss topic. E: Positive facial behavior predicts T2 depression symptoms in the loss topic. F: Positive facial behavior predicts T2 depression symptoms in the negative nonloss topic. G: Negative affect predicts T2 depression symptoms in the positive nonloss topic. T1 = Time 1; T2 = Time 2.

sample of recently bereaved adults. Although there is a large body of theory suggesting the importance of emotions in facilitating adjustment, there is a paucity of empirical data specifically focused on the nuances of emotion responses across context and how they relate to longitudinal outcome. Our findings are highly consistent with recent theoretical (Cole et al., 1994) and empirical work (e.g., Buss et al., 2004) that demonstrate the key role of context in determining adaptive versus maladaptive emotion responses.

Our findings also extend previous work in several important ways. First, our examination of the interaction between initial symptomatology and emotion responses allowed us to isolate specific patterns of emotion-linked adjustment over time. Previous research on the long-term impact of negative emotions (e.g., Bon-

anno & Keltner, 1997) treated concurrent symptoms as error to be statistically controlled and therefore could not adequately explore differences in emotion in relation to different trajectories of outcome. By examining the moderating effects of initial symptoms, we were able to observe critical nuances in the relation between early emotion and long-term adjustment to loss that were informed by the context in which the emotion occurred (loss, nonloss positive, or nonloss negative topics), the valence of the emotion (negative or positive), and the dimension of emotion response (affective experience or facial behavior).

Our findings consistently demonstrated that for individuals struggling with elevated depression symptoms early in bereavement, the benefits of negative emotion were uniquely context

Table 3
Predicting T2 Depression Symptoms With Change in Non-Loss-Related Emotion Responses

| Variable | <i>B</i> | <i>SE B</i> | β | <i>sr</i> ² | <i>R</i> ² | ΔR^2 |
|---|--------------------|-------------|---------|------------------------|-----------------------|--------------|
| Change in affect from negative nonloss to positive nonloss topic | | | | | | |
| Step 1 | | | | | .58 | — |
| T1 depression symptoms | 0.79*** | 0.11 | 0.73 | .51 | | |
| Change negative affect | 0.08 | 0.15 | 0.06 | .00 | | |
| Change positive affect | 0.26 [†] | 0.14 | 0.20 | .03 | | |
| Step 2 | | | | | .69 | .11** |
| T1 depression symptoms | 1.33*** | 0.19 | 1.24 | .37 | | |
| Change negative affect | -0.08 | 0.18 | -0.06 | .00 | | |
| Change positive affect | -0.37 [†] | 0.20 | -0.28 | .03 | | |
| Change Negative Affect × T1 Depression | 0.07 | 0.07 | 0.16 | .01 | | |
| Change Positive Affect × T1 Depression | 0.29*** | 0.07 | 0.84 | .12 | | |
| <i>F</i> (5, 42) = 19.02, <i>p</i> < .0001 | | | | | | |
| Change in facial behavior from negative nonloss to positive nonloss topic | | | | | | |
| Step 1 | | | | | .58 | — |
| T1 depression symptoms | 0.68*** | 0.11 | 0.70 | .48 | | |
| Change negative facial behavior | -0.01 | 0.32 | -0.00 | .00 | | |
| Change positive facial behavior | -0.25 | 0.23 | -0.18 | .01 | | |
| Step 2 | | | | | .69 | .11** |
| T1 depression symptoms | 0.70*** | 0.10 | 0.72 | .47 | | |
| Change negative facial behavior | 0.77 [†] | 0.40 | 0.41 | .04 | | |
| Change positive facial behavior | 0.37 | 0.28 | 0.27 | .02 | | |
| Change Negative Facial Behavior × T1 Depression | -0.69** | 0.21 | -1.14 | .11 | | |
| Change Positive Facial Behavior × T1 Depression | -0.60** | 0.19 | -1.11 | .10 | | |
| <i>F</i> (5, 34) = 13.10, <i>p</i> < .0001 | | | | | | |

Note. The dependent variable in all analyses was T2 depression symptoms. T1 = 4 months postloss; T2 = 18 months postloss.

[†] *p* < .07. * *p* < .05. ** *p* < .01. *** *p* < .001.

bound. Prior investigations of emotion context sensitivity have demonstrated a link between responsiveness to both negative and positive contexts and improvements in symptoms (e.g., Rottenberg et al., 2002). However, consistent with the growing body of literature suggesting context-specific functional benefits for negative emotion, this is the first investigation to demonstrate that context sensitivity was relevant only for negative emotions during adjustment to an acutely stressful life event like bereavement.

In contrast to the findings for negative emotion but consistent with the growing body of research supporting the general benefits of positive emotions (Fredrickson, 2001), our study showed that positive emotion predicted improved adjustment independent of context. The context-independent benefits of positive emotion are highly consistent with theories of positive emotion as well as numerous investigations of bereavement (e.g., Bonanno & Keltner, 1997; Keltner & Bonanno, 1997) that suggest that positive emotions serve key interpersonal (i.e., maintaining relationships) and intrapersonal (i.e., regulating negative emotion) functions that would be essential much of the time following a loss (Bonanno et al., 2008).

A second, related aspect to the design of the current study was the inclusion of two different dimensions of emotion responding. By measuring both affective experience and facial behavior we were able to explore the extent to which different channels of emotion are recruited in context-sensitive responding. For example, we found that in negative contexts, only emotional *expression* and not emotional *experience* was predictive of long-term adjustment. Previous investigations have documented the usefulness of emotional experience for making proximal predictions during stress (e.g., Bisconti et al., 2004; Davis, Zautra, & Smith, 2004).

However, our findings clearly suggest that the *expression* of emotion is especially relevant as a predictor of longer term adaptation following aversive life events. A likely reason for this difference is the important social functions served by facial expressions. An important function of positive expressions is the maintenance and regulation of interactions with others, including for example the elicitation of social support (Fredrickson, 2001; Keltner & Kring, 1998). On the other hand, negative expressions evoke short-term, adaptive responses from others but also serve to signal distress (see Bonanno et al., 2008).

In contrast to the data on facial displays of emotion, our findings suggest that emotional *experience* is crucial in positive contexts. Most individuals dealing with stressful life events, such as bereavement, are confronted with feelings of distress, anger, sadness, and fear in the early months following the event (Bonanno et al., 2008; Bonanno & Kaltman, 1999, 2001). However, the ability to manage daily tasks and other demands (e.g., care taking, working cooperatively) requires that the individual disengage from distressing emotions when the situation necessitates. In our investigation, the report of negative emotional experience when remembering a positive non-loss-related event proved to be predictive of a poorer outcome, whereas the ability to engage and to experience *uniquely* positive emotion during the same task predicted improved adjustment.

Finally, another key feature of this investigation was the inclusion of both loss-related emotion and emotions occurring outside the context of the loss. Arguably, the focus only on emotion responses directly related to the loss, as has been typical of bereavement research, fails to capture the full scope of bereavement-related adaptation. The current study showed that

non-loss-related emotion may also be an important marker of adjustment. As such, the capacity for context-sensitive emotional responses to events not directly related to the loss may serve a critical function in “restoration-focused” (M. S. Stroebe & Schut, 1999) efforts, such as rebuilding one’s social network and balancing new demands (e.g., childcare).

Limitations

There were several notable limitations to the study. Most important was the idiographic method of eliciting emotion responses during the interview topics. Although this technique has important utility in emotion research and allows for spontaneous, authentic, and ecologically valid emotion responses, idiographic methods afford considerably less experimental control over the source of an individual’s response. In that vein, one alternative explanation to our findings was that variability in emotion responses was due to variability in participants’ choice of topics throughout the interview. For example, a participant could have chosen to speak about a less distressing negative nonloss event relative to other participants and consequently would have had less difficulty engaging in positive emotion both during the negative nonloss topic and the following positive nonloss topic. We were able to examine and control for certain aspects of variability in participants’ content choices and found no meaningful effects. However, we cannot be entirely certain that differences in topic content did not influence our findings. Although we are confident in the strength of the idiographic approach, adjudicating among competing explanations necessitates further research. As such, we are currently planning a new series of studies aimed at verifying and replicating these findings using both standardized and idiographic emotional stimuli with a new bereaved sample.

Another limitation of the current investigation was its relatively small sample size, particularly for the analysis involving facial behavior. The small number of parentally bereaved relative to conjugally bereaved participants also prohibited any meaningful analysis of potential differences between groups. Additionally, the fixed order of interview topics was potentially problematic in that it did not allow for exploration of order effects in relation to shifts of emotion and adjustment over time. Finally, our use of valence-based measures of emotional expression limited our ability to point to specific emotions and their corresponding functions.

Clinical Implications

Within the context of these limitations, the results of this study document the importance of emotion context insensitivity as a possible early marker of chronic depression during bereavement and suggest implications for treatment of loss-related psychopathology. For example, our findings demonstrate that emotion responses directly related to the loss are only one part of the bereavement experience and that emotions generated in response to other areas of life may also be linked to improved adjustment. This idea resonates with dual process models of bereavement (e.g., M. S. Stroebe & Schut, 1999), as well as with interventions for complicated grief that focus on both ameliorating maladaptive reactions to the loss itself as well as fostering restoration aspects of functioning (e.g., Boelen, Keijsers, van den Hout, & van den Bout, 2007; Shear, Frank, Houck, & Reynolds, 2005). Our findings

suggest that clinical interventions might focus even more pointedly on improving emotion modulation in daily life. Ostensibly, the ability to respond appropriately in other areas enables the bereaved individual to maintain supportive relationships and more effectively manage the inevitable stresses that are consequences of such a loss. By the same token, our findings also suggest a role for context sensitivity in determining who might benefit from intervention and who might not (Bonanno & Lilienfeld, 2008). Individuals whose initial symptoms are closely tied to the loss but do not affect their ability to modulate emotion responses in other areas are less likely to benefit from intervention than individuals whose initial symptoms may signal more pervasive deficits. Together, these implications suggest that emotion context sensitivity is an area ripe for further research, both as to how it relates to adjustment as well as how deficits in emotion modulation can inform the development of persistent mental illness.

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