

Facial Expressions of Emotion and the Course of Conjugal Bereavement

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The common assumption that emotional expression mediates the course of bereavement is tested. Competing hypotheses about the direction of mediation were formulated from the grief work and social-functional accounts of emotional expression. Facial expressions of emotion in conjugally bereaved adults were coded at 6 months post-loss as they described their relationship with the deceased; grief and perceived health were measured at 6, 14, and 25 months. Facial expressions of negative emotion, in particular anger, predicted increased grief at 14 months and poorer perceived health through 25 months. Facial expressions of positive emotion predicted decreased grief through 25 months and a positive but nonsignificant relation to perceived health. Predictive relations between negative and positive emotional expression persisted when initial levels of self-reported emotion, grief, and health were statistically controlled, demonstrating the mediating role of facial expressions of emotion in adjustment to conjugal loss. Theoretical and clinical implications are discussed.

The death of a spouse can be one of the most stressful (Holmes & Rahe, 1967) and emotionally complex (Shuchter & Zisook, 1993) events a person might endure. The survivor's expression of emotion associated with such a loss typifies the process commonly referred to as mourning. What role, if any, does emotional expression play in the resolution of grief? Traditional theories of coping with bereavement have long viewed emotional expression as an essential ingredient in the normal recovery process (Bowlby, 1980; Lazare, 1989; Raphael, 1983). However, more recent, social-functional accounts of emotional expression (e.g., Barrett & Campos, 1987; Keltner, 1996), although not specifically developed to explain bereavement, suggest that the concerted expression of the pain of a loss may actually exacerbate the grieving process. In this study, we formalized these divergent views into competing predictive hypotheses. To test these hypotheses, we measured one aspect of overt emotional expression, facial expressions of emotion, early after a conjugal loss and assessed its predictive relation to later grief and health. We were particularly interested in whether facial expressions of emotion would simply correlate with grief and health or whether they would evidence a mediating relation to grief and health over time.

The Grief Work Account of Emotional Expression

The process of successful mourning has long been believed to require an extended period of "grief work" (M. Stroebe &

Stroebe, 1991), during which time the psychological ties to the deceased are severed by "working through" the emotional pain of the loss (Bowlby, 1980; Deutsch, 1937; Freud, 1957/1917; Lindemann, 1944; Raphael, 1983). Although grief work is generally considered a multifaceted process, involving verbal, cognitive, and emotional components, the guiding treatment goal for clinical intervention with the bereaved commonly allocates a central role to the "expression of grieving affects" (Raphael, 1983, p. 368). The initial emotional pain brought about by loss is seen as an inevitable but adaptive response (Kastenbaum, 1995). Overt expression of that emotional response to others is believed to foster recovery by helping sever internal "attachment to the non-existent object" (Freud, 1957/1917, p. 166). Acceptance of this view by contemporary bereavement theorists is motivated further by the common sense appeal of the conclusion "that the direct verbal and emotional expression of inner experiences is a highly adaptive means of coping with the painful aspects of grief" (Shuchter & Zisook, 1993, p. 33).

Surprisingly, however, there is little available in the way of actual empirical support for the role of emotional expression in the recovery process (W. Stroebe & Stroebe, 1987; Wortman & Silver, 1989). One of the reasons for the absence of empirical research in this area is that neither the cognitive nor the emotional processes that might comprise grief work have been clearly defined (M. Stroebe & Stroebe, 1991; M. Stroebe & Stroebe, 1993; Shuchter & Zisook, 1993). Indeed, recent reviews of the literature on coping with bereavement have suggested that the assumed importance of grief work in general may be more the product of "clinical lore" than systematic inquiry (Wortman & Silver, 1989; Wortman, Silver, & Kessler, 1993).

Despite the absence of an unambiguous definition for grief work, two widespread assumptions about the relation between grief-related emotion and adjustment have consistently appeared in the bereavement literature. First, expressing negative emotion (Bowlby, 1963, 1980; Lazare, 1989; Osterweis, Solomon, & Green, 1984; Shuchter & Zisook, 1993), in particular expressing anger (Belitsky & Jacobs, 1986; Bowlby, 1980; Cerney &

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Buskirk, 1991), is assumed to facilitate recovery from loss. The relative absence of overtly expressed negative emotion has been typically understood as a defensive inhibition of the "natural release of affects related to the loss" (Raphael, Middleton, Martinek, & Misso, 1993, p. 431) such that "persons who show no evidence of having begun grieving" are believed to suffer "some form of personality pathology" and to require "professional help" (Osterweis et al., 1984).

Second, expressing positive emotion, although mentioned with less frequency in the bereavement literature, is generally considered diagnostic of the denial of the loss and an impediment to the grief work process and the path toward recovery (Horowitz, Bonanno, & Holen, 1993; Sanders, 1993). Expressing positive emotion during bereavement has been associated with chronic (Bowlby, 1980; Deutsch, 1937; Horowitz et al., 1993) or delayed (Deutsch, 1937; Sanders, 1993) mourning.

The Social-Functional Account of Emotional Expression

Recent empirical studies on the role of emotional expression in general psychological adjustment suggest a different pattern of relations. This work is motivated by a social-functional account of emotion, which posits that emotion mediates the individual's adaptation to the social environment and to significant life events (Barrett & Campos, 1987; Bowlby, 1980; Darwin, 1872; Ekman, 1992; Lazarus, 1991). These mediating effects can arise from individual differences or contextual factors. Overt emotional expression, in particular, informs others of current emotions and evokes responses in others that shape social interactions in ways that directly influence personal well-being, relationship satisfaction, and adjustment to traumatic events (Keltner, 1996).

Contrary to the first expressive grief work assumption, a number of studies have linked the consistent tendency to experience and express negative emotion with increased stress and health problems (Watson, 1988; Watson & Clark, 1984; Watson & Pennebaker, 1989), depression (Nolen-Hoeksema, 1987), disrupted social and personal relations (Lerner & Dodge, 1993; Keltner, 1996; Keltner, Moffitt, & Stouthamer-Loeber, 1995; Levenson & Gottman, 1983), and with pessimism and hopelessness (Keltner, Ellsworth, & Edwards, 1993). Contrary to the second expressive grief work assumption, the tendency to experience and express positive emotion has been associated with increased personal well-being and goal directed activity (Schwarz, 1990; Taylor & Brown, 1988), and with more satisfying personal and social relations (Keltner, 1996). Although there is little empirical evidence pertaining to the role of positive emotion in bereavement, recent findings indicate that self-deceptive processes and "overly positive" evaluations and emotions can be normative rather than dysfunctional, and can promote rather than erode health (Taylor & Brown, 1988; Taylor et al., 1992). In a study of men confronted with the stress of a seropositive diagnosis for developing HIV, for example, exaggerated optimism was found to be psychologically adaptive without compromising health-related behaviors (Taylor et al., 1992).

The Current Investigation

The apparent incompatibility of the expressive grief work and social-functional accounts of emotion underscored the need to

operationalize and empirically evaluate the role of emotional expression during bereavement. This need suggested three important methodological concerns. First, emotional expression should be assessed while bereaved individuals disclose the specific emotional meanings pertaining to the loss of their spouse. This constraint captures the very nature of grief work as it is encouraged in clinical settings. Second, emotional expression should be assessed using an established, well-validated behavioral measure that can provide confident interpretations of the specific emotions expressed. Facial activity is an ideal candidate for this purpose. Although facial activity is one of several possible expressive modalities (e.g., vocal, postural), it is a primary means by which emotions are expressed socially (Bowlby, 1980; Darwin, 1872; Ekman, 1992), and there are facial expressions that correspond to specific emotions, and these can be measured reliably using existing coding systems (Ekman & Friesen, 1976). Third, a prospective design is needed to assess the predictive relation of emotional expression to grief course over time.

In the current investigation, we assessed predictions from the grief work and social-functional approaches in accordance with these methodological requirements. As part of a longitudinal project, we videotaped a group of conjugally bereaved, midlife adults six months into bereavement as they described their prior relation to their deceased spouse. The videotapes were coded for facial expressions using a well-established coding system and compared prospectively to measures of grief severity obtained at 6, 14, and 25 months post-loss.¹ In a previous study using the same participants, we found that the dissociation of the experience of negative emotion during the 6-month interview predicted the mildest grief course (Bonanno, Keltner, Holen, & Horowitz, 1995). For the present study of emotional expression, we formalized the grief work approach in hypotheses that expressions of negative emotion at 6-months will predict a milder grief course through 25 months, whereas expressions of positive emotion will predict a more severe grief course through 25 months. The social-functional approach was formalized in the competing hypotheses that 6-month expressions of negative emotion will predict more severe grief and 6-month expressions of positive emotion less severe grief through 25 months. Furthermore, by examining facial activity, self-reported emotion, and grief severity at approximately the same early (6-month) point in bereavement, it was possible in the present study to separate the respective predictive contributions of each variable to later grief course. This design allowed for an empirical distinction between the expressive grief work and social-functional hypotheses, both which assume that facial expressions of emotion *mediate* the relation between early and later grief but in different directions, and the alternative outcome that facial expressions of emotion are merely a component of the initial grief response and do not influence later grief. More concretely, both the expressive grief work and social-functional hypotheses assume

¹ We do not assume that facial activity is the only aspect of emotional expression relevant for study during bereavement. Facial activity seemed ideal for our initial research on emotional expression because its measurement is relatively advanced compared to that of other modes of emotional expression. We are currently developing additional measurement tools to assess the verbal expression of emotion.

that facial expressions of emotion, measured at 6 months, will predict later grief and health after initial grief, health, and experienced emotion are statistically controlled. If, on the other hand, facial expressions merely capture an aspect of grief but do not influence grief course, they should be unrelated to outcome once initial measures are statistically controlled.

The current investigation also addressed alternative versions of the expressive grief work hypotheses pertaining to health. The avoidance of grief work has been sometimes assumed to manifest in increased somatic difficulties (Horowitz et al., 1993; Osterweis et al., 1984; Raphael, 1983; Sanders, 1993). In our previous study of the same bereaved participants, however, the dissociation of experienced negative emotion predicted better perceived health (Bonanno, Znoj, Siddique, & Horowitz, 1996). Thus, it was of interest to assess the relation of facial expressions of emotion to perceived health. Finally, to compare the predictive usefulness of facial activity to other variables commonly believed to influence grief, we included measures of perceived social support and the degree of forewarning for the loss (Parkes & Weiss, 1983; W. Stroebe & Stroebe, 1987).

Method

Participants

Conjugally bereaved participants were recruited by newspaper advertisements, posted notices, and referrals from a variety of institutions within the San Francisco Bay area (e.g., medical centers, religious organizations). These sources requested paid volunteers who had sustained the death of a spouse between three and six months earlier and would be willing to discuss their grief experience so that "more could be learned about the grieving experience from a scientific standpoint." Respondents participated in a structured telephone screening interview. Inclusion criteria stated that participants must be between the ages of 21 and 55, either having been married or living with their deceased partner for at least 3 years, and not having had experienced serious physical or mental disorders, binge eating, and drug or alcohol abuse during that time. Informed consent was requested for participation in several video-taped interview sessions during the course of the following year. Participants were paid \$10 per hr.

We randomly selected 38 participants from those who responded to recruitment for inclusion in the present study and an additional study reported elsewhere (Bonanno et al., 1995). The sample means and frequencies of several socio-demographic variables are presented in Table 1. A multivariate analysis of variance (MANOVA) revealed no differences on these variables in the experimental sample ($n = 38$) compared with those participants from the larger bereavement sample ($N = 50$) who did not participate in the present study ($p > .25$). One participant dropped out of the bereaved sample between 6 and 14 months, reducing the 14-month sample to 37 participants. Four additional participants (10%) dropped out of the bereaved sample between 14 and 25 months, reducing the 25-month sample to 33 participants. Analysis of possible changes in the sample on the measures used in this study revealed no meaningful differences between participants who stayed in the study and those who dropped out ($p > .25$).

Procedure

Participants completed a number of standardized self-report questionnaires by mail between 3 and 6 months post-loss. A structured grief symptom interview was conducted, approximately 6 months ($M = 5$ months, 18 days) post-loss, and a semistructured narrative interview pertaining specifically to the qualities of the lost relationship was con-

Table 1
Sample Characteristics For Socio-Demographic Measures (n = 38)

Measure	Mean or percentage
Age	45.5 years
Gender	62% female 38% male
Education level	12.4 years
Ethnicity	73% Caucasian 12% Asian American 8% African American 3% Hispanic American 4% other
Employment status	53% full-time 26% part-time 21% unemployed
Family income	\$62,000
Duration of relationship	184 months

ducted on the average 17 days later. The interviewer-ratings of grief and self-reported perceived health served as the primary dependent variables and were repeated at 6, 14, and 25 months post-loss.² Both of these measures were used as dependent variables in our previous study of bereavement (Bonanno et al., 1995; Bonanno et al., 1996).

Questionnaire Measures

All participants completed the following questionnaires. Demographic information was obtained from a brief standardized questionnaire. Perceived social support was measured by adapting items from several domains reported by Kessler and colleagues (Kessler, Kendler, Heath, Neale, & Eaves, 1992). Perceived health was assessed by three self-report questions developed by the National Center for Health Services Research for the Health Insurance Study (Brook et al., 1979; Stewart, Ware, Brook, & Davies-Avery, 1978). The use of brief self-report measures of perceived health status has proven both reliable and valid (Brook et al., 1979; Davies & Ware, 1981; Mossey & Shapiro, 1982; Ware & Karmos, 1976). In addition, all participants completed the Beck Depression Inventory (BDI; Beck & Steer, 1987) and two self-report measures specifically referenced to the loss—the Texas Revised Inventory of Grief (TRIG; Faschingbauer, 1981) and the Impact of Event Scale (IES; Horowitz, Wilner, & Alvarez, 1979).

Grief-Specific Symptom Interview

A structured clinical interview was developed through extensive pilot testing of a broad range of grief symptoms described in the bereavement literature. The final set of interviewer-rated grief symptoms consisted of 30 items ($\alpha = .53$) defined as interfering with daily functioning.

² Six months post-loss was chosen for initial measurements because earlier periods tend to be characterized by (a) a high degree of intraindividual variability (Lund, Caserta, & Dimond, 1993) and (b) by a more immediate need to attend to practical matters (e.g., legal arrangements). The 6-month point minimized these confounds, but was still early enough in the bereavement to capture the quality of initial coping responses (Windholz, Marmar, & Horowitz, 1985). Fourteen months post-loss was chosen as a first follow-up date for the grief symptom interview because (a) symptom reduction appears to occur relatively gradually beyond the first year (Lundin, 1984; Vachon et al., 1982) and (b) this date avoids the possible confound of one-year anniversary reactions to the loss.

including grief-related intrusive experiences (e.g., unbidden memories or images of the deceased), behaviors that minimize the finality of the loss (e.g., an inability to part with the deceased's possessions), and difficulties adapting to the loss (e.g., feeling "in limbo" or that life has come to a standstill, unusual irritability, or difficulty being as emotionally available in significant relationships). The mean number of grief symptoms at 6 months was 9.85 ($SD = 5.18$). The interviewers also determined the forewarning of the loss. An unexpected loss was defined when there was one week or less forewarning. Using this categorization, 14 participants (37%) had lost their spouses unexpectedly, and 24 participants (63%) had relatively expected losses.

The interviews were conducted by one of three doctoral candidates in clinical psychology who were blind to the goals and hypotheses of the study. Interrater reliability was acceptable ($\kappa = .78$). The validity of the interviewer-rated grief symptom score was supported by high correlations with grief on the TRIG ($r = .64$), grief-specific intrusion on the IES ($r = .59$), and depression on the BDI ($r = .60$). Bonanno et al. (1995) reported that the interviewer-rated grief scores for a subset of the same participants used in the present study were highly correlated with ratings of grief severity made blindly in independent interviews conducted by experienced psychotherapists, $r = .67$. A more detailed account of the development, reliability, and validity of the interviewer-rated grief score is available elsewhere (Bonanno et al., 1995).

Narrative Interview

The narrative interview was conducted in an 8 ft by 10 ft room. Participants were seated in a comfortable chair facing a similar unoccupied chair and two wall-mounted cameras. Participants were informed that the interview would be videotaped and that physiological responses would be recorded. Participants were then left alone in the room to allow a 10-min baseline period for physiological data, which are reported elsewhere (Bonanno et al., 1995). An interviewer then entered the room and read a prepared script informing participants that they would be asked to speak for 18 min about specified persons in their lives, that the interviewer would keep track of the time, that the best way to approach the task was to "try to relate as openly as possible whatever comes to your mind," and that the interviewer would seldom speak other than to ask clarifying questions. To encourage spontaneous discourse, it was stated that "if at any time you go blank, or run out of things to say, just relax and give yourself time to think about something else related to the topic." The specified topic persons were (a) the deceased and (b) the most important person currently in the participant's life, in randomized order across participants. The first 6 min of each interview topic consisted of unstructured free-response to the prompt, "Please tell me about your relationship with ____." During the last 12 min of each interview topic, the interviewer prompted the participant for episodic memories involving themselves and the topic person.

Self-rated emotion. After each interview topic, participants were asked to rate how often during the discussion (0 = *not at all* to 3 = *almost constantly*) they had experienced each of three positive (interest, surprise, enjoyment) and four negative (fear, guilt, anger, distress) emotions. These self-ratings were then aggregated as an approximate measure of positive and negative emotion for each interview topic. To encourage honesty in responding, participants were informed that the interviewer would not view their responses.

Facial expressions of emotion. The participants' facial behavior observed during the initial, free-response portion of the deceased topic interview (approximately 5 min, 30 s) was coded using a version of the Emotion Facial Action Coding System (EMFACS) of the Facial Action Coding System (FACS, Ekman & Friesen, 1976, 1978).³ EMFACS concentrates on coding only the emotion-relevant facial muscle movements that have been derived from previous theory and research (reviewed in Ekman, 1984). EMFACS criteria were used to translate the coded facial

muscle movements into facial expressions of anger, contempt, disgust, fear, sadness, surprise, enjoyment (Duchenne smiles), and amusement, defined as Duchenne smiles accompanied by audible laughter and an open mouth (Keltner, 1995; Ruch, 1993). Each facial muscle movement was scored on a 5-point scale (1 = *minimal intensity*, 3 = *moderate intensity*, 5 = *extreme intensity*). Although EMFACS focuses on a more limited set of facial events than FACS, about 2 hr were required to code each participant's facial behavior during the deceased topic interview.

One person (Dacher Keltner) coded the facial behavior of all participants, blind to participants' scores on other measures. A second FACS-certified person, blind to the investigator's aims and participants' scores, coded five randomly selected participants. Inter-coder reliability was evaluated by using a ratio in which the number of facial action units on which the two coders agreed was multiplied by two and then divided by the total number of action units scored by the two persons. This agreement ratio was calculated for each event observed by one or both coders. The mean ratio of agreement was .80.

Results

Frequency, Intensity, and Duration of Emotional Expression

Intensity and duration scores for each category of facial expression were derived by finding the mean of the intensity and duration scores of the emotion-relevant facial actions. Table 2 presents the frequency, intensity, and duration of the facial expressions shown by the participants as they discussed their relation with their deceased spouse, as well as the means of the self-reported frequencies of the different emotions gathered after each interview topic segment.

Consistent with the clinical literature (Osterweis et al., 1984; Shuchter & Zisook, 1993), the facial coding revealed that participants expressed diverse emotions while describing their relation with their deceased spouse 6 months after the loss. For negative emotions, 60% of the participants expressed anger in the face, 30% expressed contempt, 32.5% expressed disgust, 15% expressed fear, and 32.5% expressed sadness. Facial expressions of positive emotion were also quite common: 60% of the participants expressed enjoyment (Duchenne smiles), and 55% expressed amusement, defined as Duchenne smiles accompanied by an open mouth (Keltner, 1995; Ruch, 1993). The frequency with which participants reported experiencing the different emotions was comparable to the facial expression find-

³ Several factors guided the selection of the initial 6 min on the topic of the deceased for the coding of facial activity. First, we reasoned that, because participant's discourse during this period was open-ended and generally free from interruptions by the interviewer, it would provide the clearest context for expressive behavior related to bereavement. The remaining 12-min portion of each interview involved prompts from the interviewer for specific memories of the deceased, which appeared to introduce greater task demand and to result in a less fluid discourse. A preliminary review of 10 interviews confirmed that the initial 6-min portion generated the greatest expressive behavior. Second, although facial activity from the current other topic may have provided additional data of interest, the labor-intensive nature of the EMFACS method restricted the amount of material that could be coded. In addition, however, previous analyses of emotional behavior in the current other topic revealed findings similar to those observed in the deceased topic (Bonanno et al., 1995).

Table 2
*Characteristics of Facial Expressions Shown During
 a Bereavement Interview*

Facial expressions	Number of participants	Mean frequency	Mean intensity	Mean duration (s)
Negative emotions				
Anger	24	3.08	3.22	1.52
Contempt	12	3.08	3.22	1.52
Disgust	13	2.23	2.94	0.95
Fear	6	1.33	2.84	3.77
Sadness	24	5.63	2.66	4.75
Positive emotions				
Enjoyment	24	1.54	3.25	2.35
Amusement	22	3.18	3.32	4.08
Self-reported emotion				
Anger		0.54		
Distress		1.49		
Fear		0.33		
Guilt		0.59		
Surprise		0.51		
Enjoyment		1.46		
Interest		2.23		

ings: Participants reported most commonly experiencing interest, enjoyment, and distress.

As expected based on previous research (Ekman, Friesen, & Ancoli, 1980), the frequency, mean intensity, and mean duration of each type of facial expression of emotion were highly correlated, ($r = .71, p < .001$). To increase the reliability of the measures of facial expression, the frequency, intensity, and duration scores for each emotion were converted to standardized z scores and then summed for each participant into a single magnitude score. The facial expression scores were then considered separately and as summed, positive and negative expression scores. As can be seen in Table 3, facial expressions of the two positive emotions, enjoyment and amusement, were moderately correlated ($r = .34, p < .05$), whereas the five negative emotions showed a range of mild to moderate correlation. The correlations between positive and negative emotions were not significant, with the single exception of contempt, which was significantly inversely correlated with both enjoyment ($r = -.32, p < .05$) and amusement ($r = -.30, p < .05$).⁴

Facial Expressions and Interviewer-Rated Grief

Zero-order correlations. The correlations between facial expressions of positive and negative emotions at 6 months and interviewer-rated grief at 6, 14, and 25 months are shown in Table 4. The summed score for expressions of negative emotions at 6 months post-loss was highly correlated with increased grief severity at 14 months ($r = .66, p < .001$) and still moderately correlated with grief severity at 25 months ($r = .40, p < .05$). Inspection of the correlations for individual negative emotions revealed that facial expression of anger and contempt at 6 months were most consistently correlated with grief severity over time. Anger at 6 months was moderately correlated with grief at 14 months ($r = .43, p < .01$), and 25 months ($r = .45, p < .01$), and contempt at 6 months was moderately correlated with grief at 14 months ($r = .44, p < .01$) and 25 months ($r = .36, p < .05$). Similarly, the summed score for expressions of positive emotions at 6 months post-loss showed inverse correlations with grief severity in the moderate range at 14 months ($r = -.33, p < .05$) and in the high range at 25 months ($r = -.52, p < .001$). Among the positive emotions, facial expressions of amusement at 6 months was most consistently correlated with lessened grief, showing moderate inverse correlations with grief at 14 months ($r = -.33, p < .05$) and 25 months ($r = -.45, p < .01$). Inspection of the overall pattern of correlations in Table 4 suggested that facial expressions of negative emotion at 6 months were most highly correlated with grief at 14 months, whereas facial expressions of positive emotion at 6 months showed a moderate but steadily increasing relation to reduced grief over time.

Distinguishing facial expressions and self-reported emotion. Next we determined the variance in grief at 14 and 25 months accounted for by facial expressions of emotion independent of self-reported emotion. In our previous study, self-reported negative emotion in the same participants predicted increased grief over time (Bonanno et al., 1995; Bonanno et al., 1996). Implicit in both the expressive grief work and social-functional hypothe-

⁴ Preliminary MANOVAs were conducted to assess possible effects due to gender and topic order on facial expressions of emotion and in grief and health course. These analyses did not approach significance ($p > .25$). Because gender was not a variable of primary interest in the present study, it was not considered further.

Table 3
Zero-Order Correlations Among Facial Expression of Emotion

Emotion	1	2	3	4	5	6	7
1. Enjoyment	—						
2. Amusement	.34*	—					
Positive sum	.79***	.85***	—				
3. Anger	-.16	-.20	—				
4. Contempt	-.32*	-.30*	.17	—			
5. Disgust	-.08	-.04	.12	.27	—		
6. Fear	.11	.04	.19	.38*	.30*	—	
7. Sadness	.19	-.01	.20	-.09	.14	.07	—
Negative sum	-.04	-.12	.50***	.58***	.58***	.83***	.33*

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

Table 4
Zero-Order Correlations Between Facial Expressions of Emotion at 6 Months and Grief-Specific Symptoms at 6, 14, and 25 Months

Facial expression at 6 months	Grief-specific symptoms		
	6 months	14 months	25 months
Positive sum	-.32*	-.33*	-.52***
Enjoyment	-.12	-.19	-.35*
Amusement	-.39*	-.33*	-.45**
Negative sum	.34*	.66***	.40*
Anger	.36*	.43**	.45**
Contempt	.31*	.44**	.36*
Disgust	.12	.32*	.27
Fear	.10	.47**	.13
Sadness	.34*	.26	.26

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

ses is the assumption that overt expressions of emotion contribute uniquely to recovery from loss. In general, facial expressions of emotion are similarly thought to operate "partially independently" from (Leventhal, 1991), and to serve different functions than, subjective or "felt" emotional responses (Keltner, 1996; Nesse, 1990). Consistent with these expectations, summed scores for negative facial expression and self-reported negative emotion were only moderately correlated, ($r = .45, p < .01$). The summed positive expression and self-report scores evidenced a mild but nonsignificant positive correlation, ($r = .19, p > .15$).

To assess the unique predictive relation of facial expressions of emotion to grief severity, part correlations were computed between positive and negative facial expressions and grief at 14 and 25 months, controlling for the respective self-reported emotion (see Table 5). Removing the variance attributed to self-reported positive emotion did not meaningfully reduce the inverse relation between facial expressions of positive emotion at 6 months and later grief. As was the case with the zero-order correlations, the summed score for positive expressions

Table 5
Partial Correlations Controlled for Self-Reported Emotion

Facial expression at 6 months	Grief-specific symptoms		
	6 months	14 months	25 months
Positive sum	-.35*	-.36*	-.52***
Enjoyment	-.15	-.22	-.36*
Amusement	-.41**	-.35*	-.46**
Negative sum	.15	.64***	.19
Anger	.18	.40**	.25†
Contempt	.15	.40**	.20
Disgust	.01	.28*	.15
Fear	.02	.44**	.05
Sadness	.18	.20	.08

Note. Part correlation done while controlling for self-reported emotion at 6 months.

† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 6
Partial Correlations Controlled for 6-Month Levels of Grief and Self-Reported Emotion

Facial expression at 6 months	Grief-specific symptoms	
	14 months	25 months
Positive sum	-.19	-.32*
Enjoyment	-.14	-.27*
Amusement	-.16	-.21
Negative sum	.57***	.12
Anger	.31*	.16
Contempt	.32*	.13
Disgust	.27*	.14
Fear	.43**	.04
Sadness	.11	.01

Note. Correlations made while controlling for 6-month levels of grief and self-reported emotion.

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

of emotion at 6 months showed an inverse part correlation in the moderate range with grief at 14 months ($r = -.36, p < .05$) and in the high range with grief at 25 months ($r = -.52, p < .001$). Also as in the previous analyses, expressions of amusement at 6 months were again most consistently linked to reduced grief at later dates, showing moderate inverse part correlations with grief at 14 months ($r = -.35, p < .05$) and 25 months ($r = -.46, p < .01$). Controlling for self-reported negative emotion likewise did not meaningfully reduce the relation between expressions of negative emotion at 6 months and grief at 14 months. With self-reported negative emotion controlled for, the summed score for expressions of negative emotion at 6 months were still highly correlated with increased grief at 14 months ($r = .64, p < .001$), and, of the individual negative emotions, moderate part correlations were still observed between grief at 14 months and 6-month expressions of anger ($r = .40, p < .01$), contempt ($r = .40, p < .01$), and fear ($r = .44, p < .01$). Controlling for self-reported negative emotion did, however, reduce the correlations between the expression of negative emotions at 6 months and grief at 25 months to generally nonsignificant levels.

Distinguishing facial expressions and initial grief response. As indicated in Table 4, facial expressions of emotion at 6 months also showed moderate correlations with grief symptoms at 6 months. In the absence of further analyses, this finding suggests the possibility that facial expressions may simply be a marker of the general grief response rather than a mediator of grief course. To address this issue and to further ascertain the unique predictive relation of facial expressions of emotion to grief course, part correlations were computed that controlled for both self-reported emotion and the effects of initial 6-month level of grief (Table 6). As would be expected, controlling for initial grief reduced the predictive relation of facial expressions to grief at 14 and 25 months. Yet, facial expressions of negative emotion at 6 months, with initial grief and self-reported emotion controlled for, still consistently predicted increased grief severity at 14 months: The summed negative expression variable showed a part correlation in the high range ($r = .57, p < .001$), and moderate part correlations were observed between grief at

Table 7
Zero-Order Correlations Between Facial Expressions of
Emotion at 6 Months and Perceived Health
at 6, 14, and 25 Months

Facial expression at 6 months	Perceived health		
	6 months	14 months	25 months
Positive sum	.10	.21	.16
Employment	.04	.22	.24
Amusement	.12	.14	.03
Negative sum	-.10	-.37*	-.33*
Anger	-.18	-.37*	-.40*
Contempt	-.03	-.16	-.11
Disgust	-.27	-.35*	-.26
Fear	.02	-.17	-.27
Sadness	.08	.04	.07

* $p < .05$.

14 months and 6-month expressions of anger ($r = .31, p < .05$), contempt ($r = .32, p < .05$), and fear ($r = .43, p < .01$). The summed score for expressions of positive emotion, with grief and self-reported emotion controlled for, still evidenced moderate inverse correlations to grief at 25 months ($r = -.32, p < .05$). Removing the variance associated with initial grief and self-reported emotion had the consequence that expressions of amusement at 6 months were now no longer significantly predictive of reduced grief at 25 months. However, the part correlations revealed that expressions of enjoyment at 6 months were significantly predictive of 25 month grief ($r = -.27, p < .05$).

Facial Expressions and Perceived Health

The zero-order correlations between the measures of facial expression and perceived health are presented in Table 7. Consistent with the findings reported above for interviewer-rated grief symptoms, the summed score for expressions of negative emotion at 6 months was moderately significantly correlated with lower levels of perceived health at 14 months ($r = -.37, p < .05$) and 25 months ($r = -.33, p < .05$). Also complementing the grief findings, expressions of anger at 6 months were consistently correlated in the moderate range with decreased perceived health at 14 months ($r = -.37, p < .05$) and 25 months ($r = -.40, p < .05$). The data on the relation of expressions of negative emotion and perceived health also revealed a new finding: Expressions of disgust at 6 months were correlated with decreased perceived health at 14 months ($r = -.35, p < .05$).

As in the previous analyses, part correlations were again computed to separate the predictive relation of facial expressions of emotion at 6 months and later perceived health from the overlapping variance attributed to initial (6 month) levels of grief and self-reported emotion. The summed score for the expression of negative emotions at 6 months, with initial grief and self-reported emotion controlled for, was still significantly predictive of decreased perceived health at 14 months ($r = -.39, p < .01$), although the relation was marginally significant at 25 months ($r = -.31, p < .10$). The expression of anger at 6

months, however, showed basically the same relation to later reduced health as was observed in the zero-order correlations. Expressions of anger at 6 months, with initial grief and self-reported emotion controlled for, predicted decreased perceived health in the moderate range at 14 months ($r = -.34, p < .05$) and 25 months ($r = -.36, p < .05$). None of the other negative facial expressions showed significant part correlations with perceived health. Facial expressions of positive emotion at 6 months showed mild but nonsignificant part correlations with perceived health.

Additive Variance of Positive and Negative Facial Expressions

As expected, the summed positive and negative expression variables were not significantly correlated ($r = -.10$), suggesting that the facial expressions of positive and negative emotion contribute separate, additive influences to grief course. To examine this possibility, the summed positive and negative expression scores were regressed simultaneously against grief severity at 14 and 25 months, controlling for self-reported emotion and initial 6-month levels of grief. Together, the positive and negative emotional expression variables uniquely accounted for 45% of the grief variance at 14 months and 10% of the grief variance at 25 months. A similar analysis for perceived health showed that the positive and negative summed variables together uniquely accounted for 26% of the health variance at 14 months and 14% of the health variance at 25 months. In contrast to the high level of variance explained by facial expressions of emotion, neither self-reported emotion nor a combination of two commonly accepted predictors of grief severity, perceived social support and degree of forewarning, accounted for more than 6% of the same grief or health variance in any of the same analyses.

Discussion

This study provides the first empirical assessment of the mediating role of emotional expression in the psychological adjustment to loss. Based on theoretical and clinical literature, we formalized the assumed importance of expressive grief work in hypotheses that expressions of negative emotion would have a salutary effect on grief and health, whereas expressions of positive emotion would impede recovery. We formalized the social-functional perspective into two competing hypotheses making the opposite predictions. To test these hypotheses, we operationalized emotional expression as facial expressions of emotion observed while participants discussed their lost relationship at 6 months post-loss and compared these data to grief and perceived health at 6, 14, and 25 months post-loss. Our findings clearly contradicted both expressive grief work hypotheses and supported both social-functional hypotheses. Participants' facial expressions of negative emotion at 6 months post-loss were correlated with more severe grief and with poorer perceived health through 25 months of bereavement. Overt expression of anger, generally assumed to be essential to grief resolution, was clearly correlated with increased grief severity and with self-reports of poorer health, as were facial expressions of contempt and fear. Interestingly, expressing sadness, also commonly associated

with grief work, was unrelated to outcome. In contrast, facial expressions of positive emotion at 6 months post-loss, in particular amusement, predicted reduced grief through 25 months.

Mediating Role of Facial Expressions of Emotion

Both the expressive grief work and social-functional approaches assume that emotionally expressive behavior actively interacts with other psychological processes and influences subsequent adjustment. Thus, in the context of the current study, the hypotheses formalized from each approach specified that facial expressions of emotion observed at 6 months would mediate the course of grief and health across subsequent assessments, albeit in the different directions predicted by each approach. Alternatively, if facial activity merely captures a facet of the grief response and does not actively influence coping, then no mediating effect should be observed. The latter result would be evidenced, for example, if expressive grief work had already occurred in the first few months of bereavement, prior to the first assessment in the current study. In this case, facial expressions of emotion at 6 months would correlate with grief but would evidence little predictive relation to later grief once initial grief was statistically controlled.

We explored the mediating role of facial expressions of emotion using part correlations. We measured the relation of facial expressions of emotion at 6 months to grief and health at 14 and 25 months while controlling for variance related to concurrent measurements of grief, health, and self-reported emotion. The unique variance from 6-month facial expressions of negative emotion predicted increased grief at 14 months and perceptions of worsened health at 14 and 25 months, whereas the unique variance from 6-month facial expressions of positive emotion predicted reduced grief severity at 25 months. Thus, in this study, facial expressions at 6 months did mediate later grief course and in a direction contrary to the predictions of the traditional expressive grief work view but consistent with the social-function approach. Indeed, the portion of the grief and health variance explained uniquely by facial expressions of emotion was considerably greater than that explained by two other variables, perceived social support and forewarning, commonly accepted as predictors of grief course.⁵

Limitations of the Present Findings

Although our findings challenge one instantiation of expressive grief work, four limitations of the present study must be kept in mind. First, the data say little about how grief may be mediated by other aspects of emotional expression, in particular the verbal expression of emotion, often emphasized by grief work theorists (Bowlby, 1980; Parkes & Weiss, 1983; Shuchter & Zisook, 1993). Both verbal and written disclosure or confession of the emotional aspects of traumatic events, for example, have been consistently linked to better health across time (Harber & Pennebaker, 1992; Pennebaker, 1993a; Pennebaker & Beall, 1986; Pennebaker & Susman, 1988). In the specific context of conjugal bereavement, the more often bereaved individuals discussed the death of their spouse with friends, the less likely they were found to report increased health problems (Pennebaker & O'Heeron, 1984). We discuss the pos-

sible relation of verbal-disclosure and nonverbal expressive behavior further in the next section.

Second, this was a study of a specific type of loss (conjugal) at a specific point in the lifespan (midlife). For many people, midlife represents a highly active and demanding period in their lives, often including peak career responsibilities as well as the additive interpersonal and economic demands of dependent children and aging parents (Bumpus & Aquilino, 1995). Given such peak social and professional demands, expressions of positive emotion may be particularly adaptive in the middle-aged individual's attempts to maintain equilibrium. By the same token, negative emotional expressions in response to loss at midlife may be particularly disruptive. The loss of a spouse later in life, on the other hand, appears to be characterized by somewhat different concerns and outcomes (Hansson, Remondet, & Galusha, 1993), as do other types of loss, such as the loss of a child (Lehman, Wortman, & Williams, 1987; Lundin, 1984) or parent (Silverman & Worden, 1993). Caution is therefore warranted in generalizing from these findings to other types of losses until further empirical evidence is available.

A third limitation is the relatively homogeneous nature of the sample with regard to ethnic and cultural distinctions. There is considerable evidence for cultural variation in the meanings of death and bereavement (Bonanno, in press; Kastenbaum, 1995; Rosenblatt, 1993; Wikan, 1990) as well as in the cultural rules for the emotional expression of grief (Brandt, 1954; Eggan, 1950; Kleinman & Kleinman, 1985; Mandelbaum, 1959; Tseng, 1974). Non-Western cultures in general appear to hold views on emotional expressivity and grief that are more consistent with the present findings than with the assumptions inherent in the notion of grief work (Bonanno, in press; M. Stroebe, M. Gergen, Gergen, & Stroebe, 1992). The extent that the current findings might generalize to other cultures or across ethnic variations is an important consideration for further research.

Finally, it must be noted that although the interviewer-rated grief score provided a rich measure of grief symptoms and evidenced convergence with self-report and therapist measures of grief, it may have also introduced new sources of bias. It is possible, for example, that the interviewers may have assigned higher grief scores to participants who naturally express negative emotion, thus inflating the correlation between these variables. Subsequent research might address this concern by controlling for emotional expressivity as a trait variable, for example, neuroticism.

Theoretical Implications

As noted earlier, although grief work has been described as a multidimensional process involving verbal, cognitive, and

⁵ The brief duration of the interview from which the facial expressions were coded is worthy of some consideration. On the one hand, given that the facial expressions of emotion were coded from such a brief window of time (5.5 min on average), their robust predictive link to later grief is all the more compelling. On the other hand, the brevity of the interview also raises some question of the appropriateness of interpreting facial activity from such a short period as a metric of expressive grief work. This concern might be addressed in subsequent research by coding facial activity at earlier and later points in bereavement or by comparing facial activity with additional measures of expressive grief activity (e.g., self-report, ratings from family or friends).

emotional components, the precise nature of these components or how they might interact has not been well defined in the bereavement literature (M. Stroebe & Stroebe, 1993). In a previous study of the same bereaved participants, avoidance or minimization of the experience of emotion, was operationally defined using an empirically verified measure of emotional dissociation. In contrast to the grief work approach, emotional dissociation early in bereavement predicted the mildest grief course and better perceived health over time (Bonanno et al., 1996). In the current study, we operationally defined the nonverbal expression of emotion during bereavement using a well-established measure of facial activity, and again the findings contradicted the predictions of the grief work approach. Because the grief work approach has been so widely assumed to predicate recovery, these findings hold several implications for theories of bereavement and coping in general.

One implication may be that, as grief work is a multidimensional process, it cannot be adequately evaluated by studying its individual components. Bowlby (1980) has noted, for example, that it is not emotional expression *per se* that is adaptive—rather, recovery is fostered when emotional and cognitive components are integrated into a deeper understanding of the loss (Parkes & Weiss, 1983; Shuchter & Zisook, 1993). An empirical examination of this possibility must await future research.⁶

A more immediate implication of the present findings is that theories of coping with loss need to more fully account for the social-functional aspects of emotion and the potentially adaptive role of reduced expression and experience of negative emotion. For example, the minimization of negative emotion may allow for more pragmatic, or active, problem-focused coping, which would facilitate responses to proximal stress (Bonanno et al., 1995; Nolen-Hoeksema, 1993) and help the bereaved address the longer-term disruptive effects of conjugal loss, such as financial hardship or changes in the family configuration (W. Stroebe & Stroebe, 1987; Shuchter & Zisook, 1993). Consistent with this view, the extremity of distress early after the death of a loved one has consistently emerged as one of the strongest predictors of later grief severity, whereas bereaved individuals with low levels of grief in first year rarely exhibit increased grief at later stages of bereavement (Bornstein, Clayton, Halikas, Maurice, & Robins, 1973; Vachon, et al., 1982; Wortman & Silver, 1989).

The minimization of the expression of negative emotion may also facilitate supportive responses from significant people in the bereaved individual's life. Support from others is generally considered an important buffering resource in coping with conjugal loss (W. Stroebe & Stroebe, 1987; M. Stroebe & Stroebe, 1993). More important, however, the verbal communication of intense negative affect appears to produce a commensurate reluctance, even a resistance, on the part of "would-be listeners" (Harber & Pennebaker, 1992; Silver, Wortman, & Crofton, 1990). Several studies have suggested that the intense and prolonged expression of negative emotions, such as anger or sadness, tends to drive away people who might otherwise offer support (Coyne, 1976; Gottlieb, 1991; Harber & Pennebaker, 1992; Pennebaker, 1993b). This may be particularly true for expressions of anger, which have been shown to produce more conflictual relations (Caspi, Elder, & Bem, 1987; Keltner, 1995; Lemerise & Dodge, 1993). Thus, the verbal disclosure of grief

and the nonverbal expression of negative emotion may not necessarily be isomorphic, and may have complementary effects on coping with loss. Bereaved individuals who manage to minimize the expression of negative emotions and at the same time maintain the capacity to express positive emotion may be more successful in eliciting supportive responses from others and, as a result, may actually be more able to verbally communicate their personal reactions to the loss than more overtly distressed individuals. We are currently conducting a follow-up study to explore the possible relations between emotional expression and supportive responses in others.

By the same token, the expression of positive emotion after a loss, traditionally viewed as an impediment to grief resolution, may signal to others a willingness or an ability to maintain pro-social contact (Malatesta, 1990). Thus, positive emotional expressions may help ameliorate the stress of bereavement by increasing continued contact with and support from important people in the bereaved person's social environment. Consistent with this interpretation, positive emotional expressions during bereavement were most prevalent among individuals with higher scores on the socially oriented personality characteristics of extraversion, agreeableness, and conscientiousness (Keltner, Bonanno, Caspi, Krueger, & Stouthamer-Loeber, 1995). Furthermore, the association of reduced grief with pro-social expressive behavior forms an appropriate corollary to the common observation of social isolation and loneliness as intrinsic features of severe grief reactions (Horowitz, et al., 1996).

In terms of clinical implications, the consistency with which reduced negative emotion predicted a milder grief course across different forms of measurement suggests that it may not always be wholly appropriate to encourage bereaved individuals to experience and express their feelings about a loss (Bonanno & Castonguay, 1994; M. Stroebe & Stroebe, 1991). Perhaps some bereaved individuals may be best served by interventions that teach them how not to dwell on the experience and expression of negative emotion or how to feel more comfortable expressing positive emotions, such as amusement, which mitigate the intensity of negative emotion (Levenson, 1988; Ruch, 1993). It may also be of interest clinically that facial expressions of negative and positive emotion in the present study were relatively uncorrelated and influenced grief severity at different stages of bereavement. These findings corroborate previous evidence (Diener & Emmons, 1985; Watson & Clark, 1984) suggesting that generally positive and negative emotions serve different interpersonal and intrapersonal functions. Clinical explanations of the role of emotional expression in coping with loss will likely need to account for these differences and their relation to the longer-term aspects of grief course.

⁶ Readers interested in a more elaborate critique of the evidence for the grief work approach are directed to Bonanno (in press), M. Stroebe (1992–1993), and Wortman and Silver (1989).

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The Publications and Communications Board of the American Psychological Association announces the appointment of five new editors for 6-year terms beginning in 1998.

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