

## Fleeting Signs of the Course of Life: Facial Expression and Personal Adjustment

Dacher Keltner,<sup>1</sup> Ann M. Kring, and George A. Bonanno

Department of Psychology, University of California at Berkeley, Berkeley, California (D.K., A.M.K.), and Department of Psychology, Catholic University of America, Washington, D.C. (G.A.B.)

### *Abstract*

In this article, we consider whether facial expressions of emotion relate in theoretically interesting ways to personal adjustment. We first consider the conceptual benefits of this line of inquiry. Then, to anticipate why brief samples of emotional behavior should relate to personal adjustment, we review evidence indicating that facial expressions of emotion correspond to intrapersonal processes and social outcomes. We then review studies showing that facial expressions relate in theoretically significant ways to adjustment after the death of a spouse, in long-term relationships, and in the context of chronic psychological disorders.

### *Keywords*

facial expression; personal adjustment; bereavement; psychopathology

In every asylum we find examples of absolutely unmotivated fear, anger,

melancholy, or conceit; and others of equally unmotivated apathy which persists in spite of the best outward reasons why it should give way. (James, 1890, p. 459)

Writers, artists, lay observers, and many behavioral scientists, such as William James, have long believed that emotional expression reveals something fundamental about the life an individual leads. For several reasons, however, the scientific study of facial expression and personal adjustment has emerged only in the past 15 years. One reason is that reliable methods for measuring facial expression were developed only quite recently. Also, it is somewhat counterintuitive, if not methodologically ill conceived (and counter to principles of statistical aggregation), to expect brief observations of facial behavior to predict cumulative life outcomes. Moreover, some social scientists argued that facial expressions provide little coherent information about an individual's emotions, intentions, and dispositions.

The study of facial expression and personal adjustment, however,

informs several lines of inquiry. It is widely assumed that emotions are associated with adaptive responses to significant events, suggesting that correlations between facial expression and adjustment are likely. Studies linking individual variation in facial expression to specific outcomes, therefore, lend credence to claims about the functions of particular emotions. Accounts of personal adjustment often specify how different patterns of emotional expression lead to positive or negative outcomes, pointing to the need for relevant research. Finally, studies of facial expression and psychopathology point to possible causes, consequences, and interventions related to emotional disturbances.

### FACIAL EXPRESSIONS OF EMOTION: MARKERS OF THE INNER WORLD AND MEDIATORS OF THE SOCIAL WORLD

The well-known cross-cultural judgment studies of Paul Ekman and Carroll Izard in the late 1960s and early 1970s documented that members of dramatically different cultures make similar attributions when judging the emotions of individuals posing various facial expressions. These findings paved the way for research that has subsequently revealed that facial expressions are much more than markers of momentary emotion. One litera-

ture, encompassing various methods and theoretical traditions, indicates that facial expressions correspond to a constellation of intrapersonal processes (see Keltner & Ekman, in press). Facial expressions of negative emotions and different kinds of smiles correlate in distinct ways to different experiences. Movements of facial muscles into the configurations of various emotions generate specific activity in the autonomic nervous system (e.g., anger elevates heart rate and disgust reduces heart rate; Levenson, Ekman, & Friesen, 1990). Recent studies have begun to link facial expressions to the individual's appraisal of ongoing events. Thus, facial expression indexes the individual's interpretation and experiential and physiological responses to ongoing life events.

Facial expressions also play vital roles in interpersonal processes, coordinating social interactions in at least three ways (Keltner & Kring, 1998). First, facial expressions rapidly convey to receivers information about senders' emotions, intentions, and relational orientations, as well as information about objects in the environment (e.g., children rely on parents' facial expressions to assess whether ambiguous stimuli are safe or dangerous). Second, facial expressions evoke in other people emotions that are associated with behaviors that help meet the goals of the interacting individuals. For example, displays of distress evoke sympathy and soothing-related behaviors. Third, facial expressions serve as incentives or deterrents for other individuals' behavior. Thus, facial expressions shape early parent-child interactions, rewarding shifts in attention, goal-directed behavior, and learning. Facial expressions also influence a wide range of adult interactions, ranging from spontaneous conversations to ritualized appeasement and courtship practices.

The implications of these empirical advances are clear. Researchers can rely on brief observations of facial expressions to make inferences about the individual's experiential, cognitive, and physiological responses to life events. An individual's tendency to display certain facial expressions should also shape his or her social interactions in consistent ways, leading to cumulative life outcomes. Although fleeting and often beyond control, facial expressions appear to be measurable signs of the course of life; they are indeed windows into the human soul.

### FACIAL EXPRESSION AND BEREAVEMENT

How might facial expressions relate to individual adjustment in response to one of life's most devastating losses—the early death of a spouse? Traditional bereavement theories offer clear predictions. These theories, based on Freudian notions of “working through” the emotional pain of loss, suggest that recovery depends on the expression of negative emotions, such as anger and sadness. The expression of positive emotion indicates denial and impedes grief resolution. Social-functional accounts of emotion, in contrast, suggest that negative emotional expression may bring about problematic outcomes, whereas positive emotional expression may facilitate the adaptive response to stress.

We pitted these contrasting hypotheses against one another in a longitudinal study of individuals whose spouses had died in midlife (Bonanno & Keltner, 1997). The facial expressions of bereaved adults were coded as they talked for 6 min in highly moving and emotional ways about their recently deceased spouses. We related measures of the participants' facial expressions

of emotions to a well-validated measure of grief severity, administered in separate interviews 6, 14, and 25 months after the loss. Contrary to widespread assumptions, higher scores for facial expressions of negative emotion, and in particular anger, predicted increased grief severity both 14 and 25 months after the loss. More laughter and smiling, in contrast, predicted reduced grief over time. The initial level of grief and the tendency to report high levels of distress did not affect this relation between facial expressions and long-term adjustment.

These findings raised an intriguing question. Why would laughing while talking about the deceased partner relate to increased personal adjustment? Recent theorizing about the functions of positive emotion points to possible answers (Fredrickson, 1998). Specifically, positive emotions are believed to accompany the “undoing” of distress (what we call dissociation from the distress of stressful events) and to enhance social bonds. Clearly, dissociation from distress and enhanced social bonds would help the bereaved individual adjust to a profoundly changed life following the loss of a spouse.

To assess these putative functions of positive emotion, we divided our bereaved participants into two groups: those who showed Duchenne laughter and those who did not (Keltner & Bonanno, 1997). Duchenne smiles and laughter involve the action of the *orbicularis oculi* muscle that raises the upper cheeks, and are typically associated with the experience of pleasure; in contrast, non-Duchenne smiles and laughter do not involve this muscle and are not associated with pleasure. We compared the two groups on three measures: their scores on a well-validated index of emotional dissociation (the discrepancy between self-reports of distress and autonomic reactivity gathered

during the bereavement interview); their ambivalence toward a current significant other; and the responses they evoked in strangers, who viewed silent videotapes of the participants. Consistent with theorizing about positive emotion, bereaved individuals who showed Duchenne laughter while talking about their deceased spouses showed a pattern of dissociation from distress, reported better relations with a current significant other, and evoked more positive responses in strangers (see Fig. 1). Duchenne laughers and nonlaughers did not differ in their self-rated personality, nor did certain circumstances of their spouses' deaths (e.g., unexpectedness or financial impact) differ between the groups.

### FACIAL EXPRESSION AND INTERPERSONAL ADJUSTMENT

From studies relating facial expression to recovery from the loss

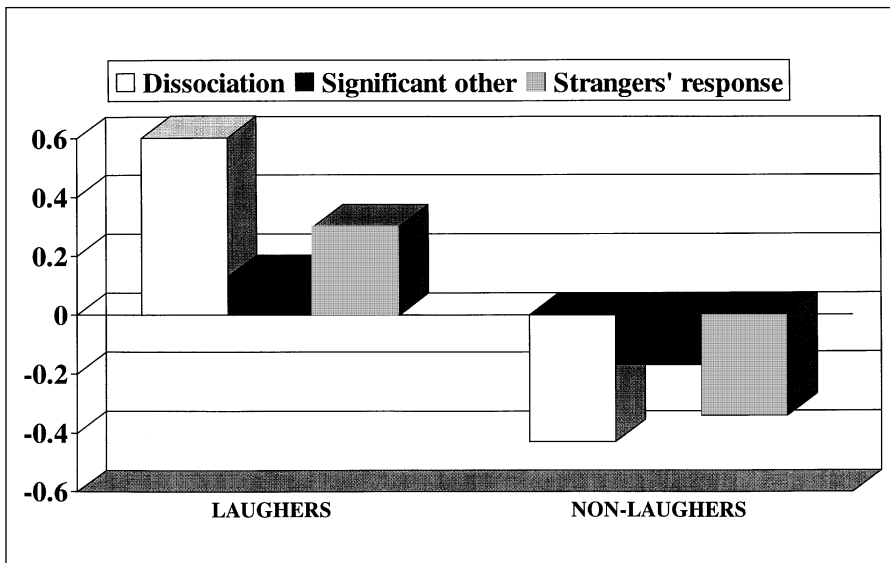
of a loved one, we turn to studies of emotion and ongoing relationships. Facial expressions, we argued earlier, coordinate social interactions by providing information to others, evoking responses, and serving as incentives for social behavior. Indeed, facial expressions are essential elements of interactions, such as attachment processes, flirtation, and appeasement and status rituals, that are crucial to human relationships. Individual differences in facial expressions of emotion, therefore, should relate to different levels of adjustment in interpersonal relationships.

Researchers have examined the contribution of emotional expression to problems in interpersonal adjustment. For example, Field and her colleagues have shown that mothers with depression express little positive emotion, and that this relative lack of positive emotional expression is linked with increased anxiety, distress, and disengagement in their children (Field, 1995). The emotional disturbance in depression is inexorably linked to the

well-documented difficulties depressed individuals have in interpersonal relationships. In other work relating emotional expression to interpersonal adjustment, Gottman and Levenson (1992) have found that partners' expressions of contempt and wives' expressions of disgust during conversations about conflict predict dissatisfaction with the relationship and its eventual dissolution.

Given the emerging interest in positive emotions, we have begun to investigate whether positive emotional expression contributes to romantic adjustment. Theorists have proposed that the expression of positive emotion allows partners to increase intimacy, convey commitment, and dissociate from the distress that is likely to arise in any long-term relationship at times. As sensible as these claims are, the relevant empirical evidence is scarce. In a first study, therefore, we addressed whether nonverbal displays of love and desire contribute to romantic satisfaction (Gonzaga, Smith, & Keltner, 1998). Following ethological studies of humans and nonhumans, we coded the affiliative and sexual cues displayed by romantic partners as they talked together about a recent positive event. Romantic partners' affiliative cues, such as smiling and nodding the head, uniquely correlated with self-reports of love, and their sexual cues, such as licking the lips and glancing coyly, uniquely correlated with self-reports of desire. These facial signs of love and desire, in turn, related to romantic satisfaction.

In a follow-up study, we examined whether one marker of romantic love, the Duchenne smile,<sup>2</sup> predicts adjustment in romantic relations over the life course (Harker & Keltner, 1998). We measured positive emotional expression from the college yearbook photos taken of women at Mills College in 1957–1958 and related these mea-



**Fig. 1.** Level of emotional dissociation and measures of social relationships of individuals who showed Duchenne laughter (laughers) and those who did not (nonlaughers) while talking about their deceased spouses. All measures are standardized z scores. Positive scores indicate increased emotional dissociation, less ambivalence toward a current significant other, and more positive than negative emotion evoked in strangers.

tures to romantic outcomes when the women were 27, 43, and 52 years old. Would a measure of positive emotion gathered in one instant in time relate to romantic adjustment 30 years later? Indeed, women's smiling assessed at age 21 related to their reports of marital satisfaction 30 years later, even when we controlled for physical attractiveness and the tendency to report socially desirable answers on questionnaires, two variables that account for significant variance in interpersonal adjustment.

### FACIAL EXPRESSION AND PSYCHOPATHOLOGY

Thus far, our review has revealed that brief observations of facial expression relate to how well the individual responds to the death of a spouse and to adjustment in ongoing interpersonal relationships. In this last section, we present evidence indicating that facial expressions relate in systematic ways to chronic, debilitating psychological disorders. This inquiry represents perhaps the most stringent test of the hypothesis that facial expressions relate to personal adjustment, and returns us to James's proposal cited at the outset of this essay.

How might facial expressions relate to psychological disorders? We have already noted that depression may be associated with certain patterns of emotional expression. Another widespread claim is that individuals who are less inclined toward self-conscious emotions, such as embarrassment, shame, or guilt, are more prone to antisocial behavior than are individuals who are more inclined toward self-conscious behavior. The rationale is rather simple: Self-conscious emotions motivate adherence to social norms and restorative interactions that follow norm violations.

Individuals who experience and display little self-conscious emotion, by implication, should be more inclined to violate social norms and less likely to restore social relations following norm violations (e.g., in interpersonal conflict). Variants of this hypothesis were advanced long ago by Charles Darwin and Erving Goffman and are embedded in cultural conceptions of the "shameless" individual.

In a test of this hypothesis, the facial expressions of emotion that adolescent boys displayed while taking a brief interactive IQ test were coded and related to their teachers' ratings of the boys' levels of externalizing disorder, defined by aggression and delinquent behavior, and internalizing disorder, defined by anxiety, withdrawal, and complaints about physical problems (Keltner, Moffitt, & Stouthamer-Loeber, 1995). The IQ test produced frequent embarrassment, anger, and fear, as the boys made intellectual mistakes in front of an authority figure (one wonders what effects those emotions had on performance). As seen in Figure 2, the boys who were most prone to antisocial behavior, the externaliz-

ers, displayed the least embarrassment (and the most anger), lending credence to the claim that embarrassment motivates socially normative behavior. The data also suggest that externalizing and internalizing disorders have different emotional cores.

Whereas these early-childhood and adolescent disorders appear to be defined by tendencies to express certain emotions, it has long been believed that schizophrenia is marked by the relative absence of facial expression. Researchers have only recently sought to empirically test this observation, initially offered by Bleuler and Kraepelin. In a series of studies, we found that schizophrenic patients show fewer facial expressions of positive and negative emotions in response to emotionally evocative material than do nonpatients (Kring, Kerr, Smith, & Neale, 1993). These effects are not related to medication or a general deficit in social skills, and schizophrenic patients often report experiencing emotion similar to and in some instances greater than that of control participants. Schizophrenic patients with flat affect are likely to deprive other people of im-

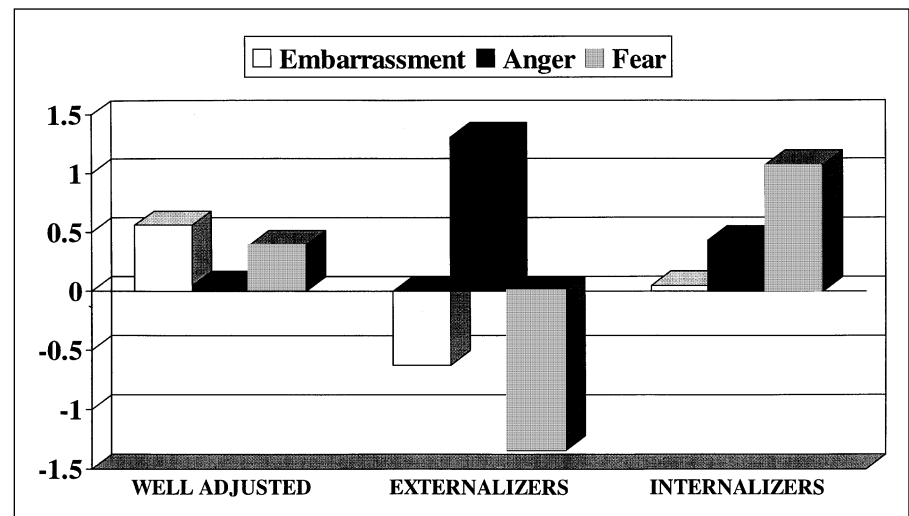


Fig. 2. Scores for facial expressions of embarrassment, anger, and fear shown by adolescent boys during an IQ test. Results are shown separately for boys rated as well adjusted, prone to externalizing behavior, and prone to internalizing behavior. All measures of facial expression are standardized z scores.

portant information and fail to evoke emotions in others (e.g., sympathy) that may benefit themselves. As a consequence, flat affect is especially predictive of a poor prognosis. Interventions that help patients better match their feelings with their outward displays may therefore have positive effects on interpersonal adjustment.

## CONCLUSIONS AND FUTURE PROSPECTS

Facial expressions of emotion are markers of intrapersonal processes and mediators of social interactions. This perspective allows researchers to test specific hypotheses concerning relations between facial expression and personal adjustment, thereby benefiting the study of emotion, personal adjustment, and psychopathology. We have shown that individual differences in facial expressions of emotion relate in theoretically coherent ways to personal adjustment in response to loss, in interpersonal relationships, and in the broad context of psychopathology. The findings we have presented, it should be noted, are primarily correlational in nature. It will be important to address how facial expressions contribute to personal adjustment.

Another kindred and promising line of research pertains to the relations between the perception of facial expressions and personal ad-

justment. Darwin and other researchers have claimed that humans evolved the capacity to reliably interpret facial expressions of emotion and respond accordingly. Consistent with this position, recent studies indicate that different facial expressions activate different regions in the brain in the perceiver and evoke different responses. We believe that these responses lead to behaviors that benefit social relations and, by implication, contribute to personal adjustment. A fairly coherent literature, based on many of the assumptions we have outlined in this review, indicates that individual differences in the perception of emotion relate to specific problems in personal adjustment. Emotion that is expressed and perceived in the face, as James noted long ago, shapes the course of life.

## Recommended Reading

- Bonanno, G.A. (in press). Grief and emotion: Experience, expression, and dissociation. In M. Stroebe, W. Stroebe, R.O. Hansson, & H. Schut (Eds.), *New handbook of bereavement: Consciousness, coping, and care*. Cambridge, England: Cambridge University Press.
- Ekman, P. (1993). (See References)
- Ekman, P., & Rosenberg, E. (Eds.). (1997). *What the face reveals*. New York: Oxford University Press.
- Keltner, D., & Kring, A. (1998). (See References)
- Kring, A., & Bachorowski, J.-A. (in press). Emotion and psychopathology. *Cognition and Emotion*.

## Notes

1. Address correspondence to Dacher Keltner, Department of Psychology, 3210 Tolman Hall, University of California, Berkeley, CA 94720-1650.
2. We, like Ekman (1993), believe that the Duchenne smile is a marker of many positive emotional states.

## References

- Bonanno, G.A., & Keltner, D. (1997). Facial expressions of emotion and the course of conjugal bereavement. *Journal of Abnormal Psychology, 106*, 126-137.
- Ekman, P. (1993). Facial expression and emotion. *American Psychologist, 48*, 384-392.
- Field, T. (1995). Infants of depressed mothers. *Infant Behavior and Development, 18*, 1-13.
- Fredrickson, B.L. (1998). What good are positive emotions? *Review of General Psychology, 2*, 300-319.
- Gonzaga, G.C., Smith, M., & Keltner, D. (1998). *Displays of love and desire: Evidence for the commitment hypothesis*. Manuscript submitted for publication.
- Gottman, J.M., & Levenson, R.W. (1992). Marital processes predictive of later dissolution: Behavior, physiology, and health. *Journal of Personality and Social Psychology, 63*, 221-233.
- Harker, L.A., & Keltner, D. (1998). *Positive expressivity and personal adjustment over the life course*. Manuscript submitted for publication.
- James, W. (1890). *Principles of psychology*. New York: Henry Holt.
- Keltner, D., & Bonanno, G.A. (1997). A study of laughter and dissociation: The distinct correlates of laughter and smiling during bereavement. *Journal of Personality and Social Psychology, 73*, 687-702.
- Keltner, D., & Ekman, P. (in press). Facial expression of emotion. In M. Lewis & J. Haviland (Eds.), *Handbook of emotions*. New York: Guilford Press.
- Keltner, D., & Kring, A. (1998). Emotion, social function, and psychopathology. *Review of General Psychology, 2*, 320-342.
- Keltner, D., Moffitt, T., & Stouthamer-Loeber, M. (1995). Facial expressions of emotion and psychopathology in adolescent boys. *Journal of Abnormal Psychology, 104*, 644-652.
- Kring, A.M., Kerr, S.L., Smith, D.A., & Neale, J.M. (1993). Flat affect in schizophrenia does not reflect diminished subjective experience of emotion. *Journal of Abnormal Psychology, 102*, 507-517.
- Levenson, R.W., Ekman, P., & Friesen, W.V. (1990). Voluntary facial action generates emotion-specific autonomic nervous system activity. *Psychophysiology, 27*, 363-384.