The experience and expression of emotion represent potent and fundamental aspects of the individual's social life. Within the social context, the individual is both a sender and receiver of emotional communication through verbal and non-verbal channels. Unexpressed jealousy, advertised joy, thinly veiled anger and overt disgust represent just a few examples of the grades and varieties of emotional display that colour social relations on a daily basis. There are obviously large individual differences in the experience and reporting of emotion, and it may be that individual strategies for regulating emotional expression have effects on health.

This chapter reviews the measurement issues involved in identifying emotional expression and summarizes the recent findings in the both short-term laboratory investigations and longer-term studies of emotional experience and health.

CAPTURING EMOTIONAL EXPRESSION

Emotion represents one of the most intriguing and yet elusive aspects of personality and social dynamics. The experience of emotion is fleeting and its public manifestations are limited by the regulation processes of the individual. Valid measurement of the emotional experience is subject to the vagaries of timing and by individual differences in reporting. Conceptualizations of individual sensitivity to emotional experience have classically distinguished between the 'repressor' on the one extreme, considered to have a heightened recognition threshold for anxiety-producing stimuli and the 'sensitizer' on the other extreme, whose sensitivity to emotion is high (Byrne, 1961; Weinberger, Schwartz & Davidson, 1979). Questionnaire measures of these constructs include Byrne's Repression-Sensitization Scale (1961), the Self-Concealment Scale (Larson & Chastain, 1990), and the contrast of scores on the Taylor Manifest Anxiety and Marlowe-Crowne Social Desirability Scales (Weinberger, 1990). A slightly different approach has been used by King and Emmons (1990), who compared and contrasted scores on self-reports of emotional expressiveness (EEQ) with those of ambivalence over emotional expression (AEQ).

Convincing arguments have been made, outlining the pitfalls of relying solely on questionnaire measures to measure psychological styles and mental health (e.g. Shedler, Mayman & Manis, 1993), so it has been incumbent upon researchers to assess the range of emotional experience and expressiveness across a number of verbal and non-verbal channels. Social psychophysicologists have been successful in identifying nervous system correlates of particular emotions and emotional expression (Ekman, Levenson & Friesen, 1983). One effective strategy based on this approach has been to identify a repressive style through self-reports of low distress with autonomic measures that show indications of increased anxiety or stress such as skin conductance and heart rate (Pennebaker & Chew, 198; Sackheim & Gur, 1979). Other approaches to the measurement of expression or expressiveness have included judges' ratings of facial and vocal characteristics of videotaped interviews; analysis of language usage that features emotionally relevant words; and objective signals of emotion such as crying, blushing, and smiling or laughing.

A third approach to the evaluation of emotional expression and its effects is through manipulations designed to induce emotional states in the subjects. These strategies include the use of methodtrained actors imagining hypothetical situations, the induction of emotion under hypnosis, requests that subjects recall or write about emotionally potent aspects of their personal histories, and other procedures that mimic the psychotherapeutic process and inherently involve emotional expression.

Research into the effects of emotional expression and health has a brief history and draws on a wide range of methodologies. In the next section we first discuss emotion and the body from a relatively microscopic perspective: that is, measurable effects of laboratory-induced states occurring over a period of minutes or seconds. We then shift to the broader perspective of emotional expression and its links with health, disease, and mortality.
The evidence that distinct emotions are accompanied by distinct autonomic patterns, and that extensive communication occurs between the nervous and immune systems points to the potentially instrumental role of the emotions in health processes. However, few published studies have investigated the effect of emotional experience on immune function. Knapp et al. (1992) asked healthy volunteers to recall and re-experience disturbing emotional experiences under conditions of cardiovascular, video, and immunological monitoring via catheterization. They reported that the induction of negative mood was associated with poorer lymphocyte response to challenge particularly related to the experience of anxiety. They also reported that brief increases in Natural Killer Cell Activity were associated with the experience of sadness. Futterman et al. (1992) observed no significant differences from before, to during, induction of emotional state using method-trained actors, except a slight trend towards greater circulation of NK cells during the negative emotion period. The authors concluded that small subject numbers and the lack of personal memory might have contributed to the lack of direction of the findings. Overall, these findings suggest that even relatively brief experiences of emotion can modestly affect the trafficking and functional quality of immune cells, and that the immune system's relationship to psychological states is not unidimensional.

The effects of expressed versus unexpressed emotion are somewhat less clearcut. A simple way to conceptualize emotional expression is to divide it between those who do express emotions and those who do not. The problem, however, lies in understanding the experience of the group who are not expressing emotion: is it because of some strategy of suppression or inhibition, or for some other reason such as not experiencing a particular emotion? Drawing conclusions based on non-behaviour is a risky business. To address this problem, Weinberger et al. (1979) divided subjects according to their scores on the Taylor Manifest Anxiety Scale and the Marlowe-Crowne Social Desirability Scale, with those reporting low anxiety but high levels of defensiveness classified as 'repressors', and those reporting low anxiety and low levels of defensiveness as true low-anxious. Those who scored high on anxiety were classified as either high-anxious or defensive high-anxious, according to their levels of defensiveness. Those subjects classified as repressors exhibited higher levels of autonomic activity in the form of resting EMG activity and skin conductance. The same findings were offered by Sackheim and Gur (1979), who reported that they found an inverse relationship between self-reports of disturbance and physiological activity, particularly skin conductance. Individuals who employ a repressive coping style have also been found to have slower learning times regarding the use of provocative material, slower reaction times to emotion-relevant stimuli, and impoverished access to emotionally relevant memories, suggesting that a general strategy of blunting unpleasant thoughts and feelings is indeed occurring, whether consciously or unconsciously (for a review see Barger, 1995).

Labott et al. (1990) examined effects of either inhibiting or expressing laughter or weeping in subjects who watched humorous or sad films. The humorous film resulted in higher levels of the antibody IgA, regardless of expressive condition; while the sad film resulted in lower levels of IgA only for those who overtly wept. Thus, immune effects of emotional expression appear to also vary according to the type or valence of emotion.

Short-term studies of the physiology of emotional expression are largely based on the premise that longer-term, chronic experiences of such states would contribute in a meaningful way to the pathogenesis and/or progression of disease. As yet, there are very few investigations that have examined both short-term physiology and their relationship to long-term health outcomes. Such comprehensive approaches would supply valuable information about the generalizability of laboratory studies of emotion.

BROADER INVESTIGATIONS OF EXPRESSION AND HEALTH

It is useful to bear in mind that different motivating factors may underlie levels of emotional expressiveness, and that such factors may impact on health in different ways. For example, individual differences such as shyness and extroversion may mediate expressiveness differently from event-driven motivations like shame or embarrassment surrounding the experience of rape, incest, war, or unethical conduct. Other motives include environmental considerations such as professionalism, interpersonal attitudes like suspicious defensiveness, and value systems that discount emotional experience. Insufficient work has been done in this area to adequately assess the distinct roles of these factors in health processes, and certainly the factors are not mutually exclusive, but some studies have fruitfully examined these relationships. Jerome Kagan and his
colleagues have investigated a number of aspects of individuals classified as extremely shy. Observations of children who are socially and behaviourally inhibited have revealed that this group shows a greater autonomic reactivity to stress than others, as well as a significantly greater incidence of allergic rhinitis (Bell et al., 1990). Social anxiety was also a significant factor in the follow-up findings of the Harvard Mastery Study, a 35-year longitudinal investigation of psychological and physical factors predicting health and illness (Russek et al., 1990).

The repressive coping style, which appears to involve a more unconscious level of emotional inhibition, has most frequently been associated with the onset and progression of cancer (Gross, 1989). A number of studies have found that a repressive personality style was significantly associated with poorer NK cell activity, the index of immune function most directly implicated in the surveillance and destruction of tumours (Levy et al., 1985), a diagnosis of malignancy (Greer & Morris, 1975), a poorer disease prognosis (Jensen, 1987), and death from cancer (Pettingale et al., 1985).

Schwartz (1983, 1990) has advanced a model of repression and disorganization based on general systems theory and cybernetics that integrates findings from biofeedback, neuroendocrinology, and psychology. In brief, the theory asserts that disattention to signals of distress results in physical disorganization due to cortical overriding of immunoregulatory homeostatic mechanisms. Temoshok (1987) has proposed a model of the cancer prone individual based on a constellation of psychological traits that seemed to be consistent with a diagnosis of cancer and poor disease prognosis. She identified this Type C personality as having three central characteristics, namely: stoicism, a difficulty in expressing emotions, and an attitude of resignation or helplessness/hopelessness. The findings overall have been mixed, leading researchers as a whole to treat the notion of the repression-cancer link with some scepticism (Anderson, Kiecolt-Glaser & Glaser, 1994).

If repression and inhibition are associated with increased vulnerability to illness, it stands to reason that measures to induce openness and emotional expression would serve to enhance health. It is now well known that a number of psychologically stressful events are associated with poorer immune function and increased incidence of illness (Kennedy, Kiecolt-Glaser & G laser, 1988). Moreover, there is also evidence that events which are difficult to discuss with others, such as sexual abuse, may have more pervasive health effects than other difficulties (Golding et al., 1986; Pennebaker & Susman, 1988).

Over the past decade, James Pennebaker and colleagues have operationalized a kind of confessional setting, in which subjects are ushered to a small private room and asked to write about the most upsetting event of their entire lives. The procedure is repeated over three or four consecutive days for periods of approximately 20 minutes. More recent investigations have employed a computerized system of autonomic recording as subjects type their stories at a computer terminal. Pennebaker and Beall (1986) found that subjects who wrote their thoughts and feelings about upsetting events showed reduced health centre visits over the follow-up period compared to subjects who wrote in thoughts-only and feelings-only conditions. Pennebaker, Kiecolt-Glaser and Glaser (1988) found that those who wrote about upsetting events exhibited better immune function and fewer health centre visits over follow up than did subjects who wrote about trivial topics. Based on these and other findings, Pennebaker (1989) developed a theory of inhibition and disease that posited that inhibition requires autonomic work (evidenced in higher skin conductance levels) and thus constitutes an ongoing stressor, depleting the body's resources for resisting illness.

Other laboratories since then have employed a number of different variations on this basic theme and different measures of health and immune function, and the results have been strikingly similar. Esterling, Antoni, Kumar, and Schneiderman (1990) reported poorer cellular control of a latent virus (Epstein-Barr) in those subjects judged to be repressing disclosure of negative affect in a study that required discussion of emotional material. Similar findings were reported in a more recent replication of that study (Esterling et al., 1994). Moreover, Petrie et al. (1995) found decreased skin conductance levels over the course of writing and improved response to a hepatitis B vaccination programme following emotional disclosure.

It is likely that future work will be directed towards elucidating links between specific aspects of self-expression and physiological correlates. In an attempt to identify linguistic and autonomic predictors of health and health enhancement, Pennebaker has begun to employ methods of recording various autonomic channels as subjects type about their upsetting memories, and the essays are, in turn, subjected to a detailed programme of linguistic and content categorization (Pennebaker & Uhlmann, 1994; Francis & Pennebaker, 1994).

Evidence supporting the health benefits of self-disclosure has received an explosion of attention in light of recently reported findings indicating that group therapy, which consisted mostly of self-disclosure, resulted in increased life expectancy for a group of metastatic breast cancer patients randomly assigned to
condition (Spiegel et al., 1989). In addition, use of an early structured psychiatric intervention was found to have beneficial effects for prognosis of a group of melanoma patients (Fawzy et al., 1993). Meaningful selfdisclosure has also been described as central to a non-surgical approach for reversing coronary artery disease in patients whose conditions precluded bypass or other surgical interventions (Omnish et al., 1990). Thus, longer-term interventions that feature emotional expression have demonstrated physical benefits, but is not possible from the studies to date to separate the non-specific effects of the group process from the specific results of emotional disclosure.

CONCLUSIONS

In this chapter we have attempted to highlight the central issues in the measurement and impact of emotional expression on health, and a number of pressing questions emerge from a review of the data. For instance, what is the relationship of self-reports of particular emotional states and expression of such states within the social context of the individual? Many of us would anonymously report the experience of anger in the workplace; but few overtly express such emotions, especially to superiors. Future research will also need to clarify more carefully distinctions between emotion experienced and emotion expressed, and the relative levels of each (overall emotionality). Is it high hostility that drives coronary plaque formation, or is it hostility that must remain silent, or is it the difference between the two that really contributes to disease? And, can researchers feel confident of the validity of subjects’ self-reports? Unconscious associations may contribute to illness in ways that neither researchers nor subjects appreciate (Epstein, 1994).

Even more troublesome is the question of specificity. If certain psychological states are associated with certain physiological substrates, how do they manifest in illness? It would be simplistic to assume that particular emotions issued in specific disease patterns. As many have pointed out, rarely is one emotion experienced in a vacuum, so more realistically emotional states come in clusters that represent situational coping or personality attitudes. This issue also underscores the difficulty of inducing emotional states and drawing conclusions based on single inductions. Future studies would do well to induce one emotion from a variety of hypothetical situations to test for reliability. It is useful to bear in mind that emotions may not constitute psychosomatic causal factors, but in reality may be symptoms of larger predicaments or challenges that may contribute to health status over time. The field is new, so gaping holes in findings are more the rule than the exception. A greater understanding of the effect of emotional expression on health will be enhanced by future studies that incorporate both short- and long-term measures in their design. (See also ‘Coping with chronic illness’.)

REFERENCES


