EMOTIONS AND HUMAN HEALTH

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Summary
Emotions are experienced mentally as preoccupations that affect attention and that order priorities among people’s concerns. They also set up frames of interaction with others. For instance, happy affection sets up a mode of cooperation; anger sets up a mode of conflict. Modern analyses of emotions indicate that they are important signals to ourselves and others of the progress of our interactions. They also affect health, including psychiatric and physical health. Indeed, the kind of health that can be thought of as flourishing, or well-being, has many of the same determinants as emotions, and may partly depend on them.

. . . human misery has awakened, stood before you, and today demands it proper place. Jean Jourès (1897)

1. Introduction
Emotions signal to individuals and to others how an interaction with the world is faring. At the same time emotions provide the bases for interaction. When humans are happy, they engage in what they are doing. They tend to become creative and to cooperate with others. More than two millennia ago, Aristotle (fourth century B.C.E.) correctly regarded happiness as the process of engagement in worthwhile activity. The term he used was eudaimonia. Although this is usually translated as “happiness,” modern
classicists often now translate it as “flourishing,” or “well-being,” or even “excellence.” By contrast when people are unhappy, in the many ways in which unhappiness is possible, they are thrown back upon themselves. They no longer flourish in their interactions. Although in many states of unhappiness there are possibilities for personal reflection and growth, if unhappiness is prolonged or profound we speak, as did Jean Jourès, of “human misery”; it may be seen in the many varieties of non-flourishing: violence, despair, depression, and illness. In the hundred or so years since Jourès wrote, progressively greater attention has been paid to the fact that misery is the lot of a large proportion of the world’s citizens.

In a technical age of antibiotics and aseptic surgery, the view that emotions and health are inextricably linked can be seen as radical because it transcends the mind-body dichotomy that has become usual since the rise of science in the seventeenth century. We propose, however, that it forms the best current basis available for thinking about both emotions and health. Emotions are those processes that both engage us in the world in a way that promotes well-being, and that signal to us and to others how these interactions are going, that is to say whether we are or are not flourishing.

Although we can talk of them as separate, both emotions and health derive from the basic structures of our interactions with the world. It is even, one might say, something of an illusion to think of oneself as separate from the world, and therefore as having to enter into interaction with it. Rather, selves are part of that world: people are selves-with-the-natural-world, selves-at-work, selves-interacting-with-loved-ones, selves-with-those-who-do-not-care-much-about-one. But in the West, people are inured to individualistic thinking, and so talking of individuals and their relationships is probably the best path.

In the terminology of individuals and their close relationships, we show, first, that emotions set up modes of interactions with others. Second, we show that human mental illnesses are, for the most part, emotional states in the large that occur when people experience severe adversity. Third, we propose that in terms of whole populations, ill health is the result of people being unable to sustain robust and satisfying personal relationships and interactions with their worlds.

2. The Nature of Emotions

Emotions have been a primary concern of writers since the early origins of writing. No doubt this is because it has been clear that while emotions are at the center of who people are as human beings, they are often problematic—especially the emotions of conflict and war—and they are not always easy to understand. In the Middle East, the cradle of Western civilization, one of the earliest sets of stories, from 4000 years ago, was of Gilgamesh, who defied the gods. As a result, his companion Enkidu was killed, and this precipitated Gilgamesh into mourning and despair. From roughly the same time in Egypt comes the dialogue of a man, weary of life, weary with his soul. A thousand years later, Hebrew culture was also leaving written traces: there is the story of Abraham and the anguish of obedience to a God who could order the slaying of his son Isaac. From the Greeks at the same time comes the Iliad, which starts with the words “Of wrath sing, Goddess” as the storyteller invokes the muse to sing of angry conflict.
within the Greek army in the context of a larger long and bitter feud with the Trojans. From India come writings of similar antiquity that include the Mahabarata, a tale of family feuding, allegorizing the battle of good and evil, with a final remorse of the heroes: they too have committed evil in their fight against it. Chinese epics of this early period probably existed, but have been lost because of the greater fragility of bamboo than papyrus and parchment. But writings have survived of Chinese sages such as Confucius, his follower Mencius, and the Daoists with the legendary author Laozi (Lao-tzu), with themes that include the importance of respect for others, and the practices of meditation. And here is this from Mencius, who recounts that a king he was encouraging to examine his occasional good feelings said: “I could not understand my own feelings, but as soon as you explained them to me, something in my own heart at once stirred.”

Psychological interests and interpretations of the emotions in the West derive also from the same period as Mencius. These themes include those of Aristotle. His proposal was that emotions are evaluations of events. They are thoughts of a particular kind that also affect the body. They strongly influence how people experience the world, and how they understand what others may say.

For Aristotle, eudaimonia was a central concept. It is not a state, but an activity: the happily flourishing life involves action and engagement with society. Close relationships, contemplation (or understanding), and fortune all played critical parts in Aristotle’s views on the flourishing life. Good luck, for Aristotle, was not a sufficient condition for flourishing, as the good life must be one of active and positive engagement. But the absence of severely bad luck was necessary. It is nonsense to think that those who suffer from great misfortune can still flourish. But friendship contributes to resiliency in times of misfortune. And understanding, too, is a mode for achieving eudaimonia. There is a fundamental human inclination to try to understand the nature of the world.

Aristotle pointed out that people have different capacities for a flourishing life. He described a range of civil status that descendant from the level of full citizens (always male) to artisans, political slaves, women, and natural slaves. Though we see this hierarchy now as antique, we do not find odd the equivalent range of income in North America, or of social class in Europe. The point is that such ranges relate to people’s capacity to flourish. Both the antique and the modern hierarchies are of access to goods of which there are, according to Aristotle, three kinds: goods of the body, goods of the soul, and external goods. Goods of the body include health, fitness, and strength. Goods of the soul include virtues, intelligence, and wit. External goods include wealth, property, and civil status.

For Aristotle, the nature of people’s interaction varies across the life span. Children, who are learning how to become good citizens, are most amenable to education by habit formation. For adults, what is paramount is their active engagement both in their local group of intimates and in the larger society as a whole. In later life, people may enter a state of contemplation, which for Aristotle was the highest good. But this was not a good that could occur without a firm grounding in the earlier stages. Thus attention
must be paid at each stage, not only to the individuals and their social contexts, but also to the nature of their interaction with them.

Both in the East and the West, and in the schools of thought and practice from Aristotle’s time almost to the present, we see themes of people seeking the principles of a flourishing life, and freeing themselves from the effects that militate against it, prominent among which are negative emotions such as hatred, envy, destructive anger, and disabling fear, all of which have egotistical and disabling aspects. In the West, the Stoics, who are in direct line of descent from Aristotle, taught that philosophy is a kind of medicine for the soul, the object of which is to extirpate emotions, because of their unruly and antisocial effects, in order to become good people. Their work not only exemplified cognitive analyses of great and lasting value, but they provided the link between Graeco-Roman civilization and the values of Christianity that were to dominate Europe from the conversion of the Emperor Constantine to the present. In the East the practices of meditation, including those of Buddhism, had aims and effects that in many ways are comparable to those of Stoicism: to liberate individuals from egotistical material desires, from which unruly emotions would surely follow, and to liberate them also from the influences of social hierarchy that can also lead to destructive emotions.

The great rationalist philosophers René Descartes and Baruch Spinoza, writing in the period following the end of the European Renaissance at the dawn of the age of science and of the Enlightenment, provide a link from ancient to modern times. Descartes described how we are guided by emotions and can influence their effects by thought. He wrote the first book to link philosophy to what has become modern psychology and neurobiology of stimuli and their effects. Spinoza was the harbinger of modern psychotherapy. He argued that only by understanding our emotions and seeing our own place in the scheme of things do we liberate ourselves from what he called the “human bondage” that, when emotions are misunderstood, they can commit us to.

The notable early landmark in the scientific understanding of emotions was Charles Darwin’s 1872 book *The Expression of the Emotions in Man and Animals*, in which he linked emotions to his theory of evolution. Darwin’s legacy is that psychologists and neurobiologists now see emotions as very much as part of the human evolutionary heritage, passed on to each of us by our genes. Researchers now tend to see the importance of emotions as providing us with our core values and means of relating to each other, rather than (as in some former times) as the enemies of serenity and rationality.

Emotions then, since the beginning of writing, have been objects of fascination both because they concern what is most intimate and important to human life, and because some of their effects seem problematic and demand understanding.

In modern psychology, emotions are generally understood as those psychological states and processes that relate the outer world of events to the inner world of desires and concerns. An emotion is, in Aristotle’s terms, an evaluation of an event. As modern theorists put it, an emotion is elicited by an appraisal of an event in relation to people’s concerns, or goals. An emotion is an action-readiness that sets priorities among
concerns, and hence determines the urgency of any such concern, and thereby the ways in which individuals interact with the world.

Each specific emotion is determined by particular features of an appraisal. For instance, an event such as a frustration or an insult impinges on a concern to maintain progress in a plan in which we are engaged, and in which our sense of self is involved. It is likely to elicit anger. Some researchers make a distinction between a primary appraisal (of the event in relation to the concern affected by it) and a secondary appraisal (of how to cope with the event). In this way, anger is primarily a frustration. Then secondarily, becoming angry is more likely if your concern for self could be enhanced by contending against the person who frustrated you. Anger then becomes, for a time at least, your way of interacting with the world. This emotion sets up a script of conflict with the other person that usually is resolved by some adjustment of the relationship. Either you succeed in asserting yourself against the other, or (the most usual outcome, since most episodes of anger occur with people who are known and loved) a reconciliation occurs in which you and the other both reevaluate what has gone wrong, and set forward again after an adjustment of the relationship.

This kind of thinking has led to the investigation of coping with adverse events, and with the emotions they elicit, and it is important in the psychology of health. An example: imagine you are waiting for your 12-year-old child to return from school at a certain time. She does not arrive. You experience a growing anxiety. The emotion sets your mental priority to only this issue: your child’s safety. You put aside all thoughts of other activity; all mental processing is switched to the urgent concern for her. You make plans to see what has happened to her. Finally she arrives. The anxiety is quelled, and ordinary life continues. By contrast, chronic anxiety about a child’s welfare, for instance if you live in poverty with its consequent lack of resources to make plans to ameliorate the situation, can lead to chronic undermining of psychological and physical health.

A typical modern psychological treatment of emotions, influenced by both Aristotle and Darwin, is by Oatley and Jenkins (1996) who argue that emotions that are biologically given provide the bases for modes of organizing the brain and mental life into distinct modes. These modes have been selected for during evolution. With each one, the brain is switched into a pattern of activity that is functional in response to a certain recurring kind of event. Such events are those that relate to our concerns and goals as, for instance, when a person’s mental life is switched to anxiety if her child does not return home when expected. Table 1 shows a set of basic, biologically given, emotions, the kinds of event that elicit them, and the priorities they accomplish. These basic patterns are then built upon by culture and by individual development and experience.

<table>
<thead>
<tr>
<th>Emotion (mode)</th>
<th>Eliciting event or object of emotion</th>
<th>Priorities and the actions to which attention is switched</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotions that can occasionally be free-floating</td>
<td>Goal condition</td>
<td>Adjustment of plan</td>
</tr>
<tr>
<td>Happiness</td>
<td>Subgoals being achieved</td>
<td>Continue with plan, modifying if necessary; cooperate; show</td>
</tr>
</tbody>
</table>
Table 1. Nine basic emotions as postulated by Oatley and Johnson-Laird, with the events relevant to concerns (goals) that elicit them, the functions they perform and the transitions they accomplish. Emotions in the first group can occur without the experiencer knowing what caused them; those in the second group always have an object.

<table>
<thead>
<tr>
<th>Emotions that always have an object</th>
<th>Goal</th>
<th>Adjustment of plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachment love</td>
<td>Proximity to caregiver</td>
<td>Keep contact, talk</td>
</tr>
<tr>
<td>Caregiving love</td>
<td>Care for offspring</td>
<td>Nurture, help, support</td>
</tr>
<tr>
<td>Sexual love</td>
<td>Sexual partner</td>
<td>Engage in courtship, sexual activity</td>
</tr>
<tr>
<td>Disgust</td>
<td>Reject contamination</td>
<td>Expel substance; withdraw</td>
</tr>
<tr>
<td>Contempt</td>
<td>Reject outgroup person</td>
<td>Treat without consideration</td>
</tr>
</tbody>
</table>

3. Emotions and Roles

Human beings are the most social of all vertebrate species. People’s most fundamental concerns, therefore, are with each other. Most of the plans described in the previous paragraphs and in Table 1 are social plans. Emotions set frames (or scripts) for certain kinds of interactions with others. So happiness and its close relative, affection, are the emotions of cooperation with others. Anger, by contrast is the emotion of frustration: it sets the brain into a mode of assertion, in an attempt to surmount frustration or to redress insult. Interpersonally it is the emotion of conflict, and of contending with others to maintain one’s sense of self, or to triumph over others. Fear is the emotion of response to threat, including the threat of separation from a loved one, and it focuses the mind on how safety and interpersonal comfort can be maintained.

In the social sciences and humanities, starting in the early twentieth century, a number of psychologists and philosophers became concerned with how society is held together. They asked: “What is the nature of individuals’ involvement with each other?” At this time the term “role” was introduced in the social sciences. The concept is fundamental to understanding the social functioning of emotions, and their effects on selfhood and health. It comes from the theater and from games. It means something like a part one might play, an outline script. It offers opportunities for a certain kind of performance in relation to others. Thus to keep goal in hockey or soccer is to enact a role in relation to others—attackers on the other team and defenders on one’s own team—who have other roles.
The best analysis of the functioning of roles has been from the work of a sociologist, Erving Goffman, perhaps especially in his small book *Encounters*, which contains two essays. In one of these, “Fun in games,” he explains how it is that one can expect to achieve the emotional mode of having fun in a game. The answer is that a game is set up as a kind of elemental model of a certain kind of social interaction. By taking part in it, we can enter into relations of a particular kind with others. By taking the role of hider in hide-and-seek, we can become the center of attention, and tease others into mild frustration as they fail to discover where we are. Snakes and ladders provides competitive roles in an allegory of progress and decline. Tennis is another game of competitive roles in which we can display our combative skill; it is not nearly as damaging as the aristocratic games of jousting from a few hundred years ago in which such skill could be lethal.

Games afford roles in relation to one or more others. In this way they are no different from the kinds of interactions in which people take part in every other aspect of life. When people go into a shop, they take on the role of customer in relation to a salesperson. With offspring people take on the role of parent. With the beloved, people take on the role of lover, and so forth. Each role has its rules, and its outlines. The role, then, is a kind of extended social plan based on interactions with one or more others, and perhaps some props or equipment. All the participants know, more or less, how it should be appropriately enacted in any given setting, and social commentary occurs on such enactments.

One of Goffman’s points is that games are social interactions that are contained and set apart. When a person enters into any encounter with another, it is as if that person enters through a semi-permeable membrane that contains just this particular kind of interaction. Within the membrane of, for instance, a game of soccer, we do not just adopt a certain set of rules, we enter into a whole world. The world is one in which we can experience ourselves perhaps as swift, perhaps as skillful, perhaps as a team player. The same is true for jobs and careers: physicians enter each day into the role of skilled career, and experience themselves in this way. Bus drivers experience themselves as responsible for the passengers they carry, and as careful of other road users. It is by engaging in worlds such as these that we experience our selfhood, and this typically occurs in relation to others. Each world has its own history, and its own meanings. For games, each world is, as Goffman says:

*A matrix of possible events and a cast of roles through whose enactment the events occur constitute together a field for dramatic action, a plane of being, an engine of meaning, a world in itself, different from all other worlds except the ones generated when the same game is played at other times.*

In their essence games are, however, not serious. Despite what we may read on the sports pages, they are, as it were, little worlds. But these microcosms have the effect of allowing us to understand the more macrocosmic space in which we move: the space of work or parenthood, or family, or friendship, or politics. Games make visible some of the structure of the non-game parts of social life, nowhere more so than in the idea of role. Goffman’s quotation above is just as true for entering through a semi-permeable
membrane into the role of student with teacher, or of parent with child, or of two spouses, or of employee with employer.

There are two shocking aspects of this theory. The first is that people are somewhat interchangeable. All you need to enter a role is to practice the skills and give a plausible performance in the role that is afforded: thus you can be, and experience yourself as, a good employee, an affectionate lover, and so forth. (How different this is than the medieval notion of each person fixed and known in their place in the social structure.) The second shocking implication is that selfhood derives not from some kernel of individuality, but from just such enactments. We experience ourselves as kind, and indeed become kind, by acting kindly in our relationships with others. As discussed in the next section, when we lose an important role, then, perhaps by an accident of misfortune, we are in peril of losing the aspect of selfhood that derived from it.

Emotions are intimately related to roles in a number of ways. The emotions themselves set up outline structures for particular role-relationships. If I smile happily at you, I am not just expressing some inner state. I am inviting you into an affectionate and cooperative relationship. The emotion, in other words, is not just a signal of what is going on in an interaction, but a fundamental contributor to it. If I am angry with you, I invite you into a structure of conflict and contention. Emotions, indeed, can be thought of as roles.

4. Emotional Disorders

In psychiatry, several main types of disorder are currently recognized. These include psychoses such as schizophrenia, personality disorders such as sociopathy, substance-abuse disorders such as alcoholism and drug dependency, and emotional disorders such as depression and clinical anxiety states. For the psychoses, there is substantial evidence of a principal genetically linked neurochemical imbalance, although this is affected by emotions. For other kinds of disorders emotions are more primary. The principal feature of sociopaths (who used to be called psychopaths), for instance, is continuing anger and disregard of the interests of others. In the West a substantial proportion of such people spend a large amount of time in prison. There is a strong linkage in such people to upbringings that were violent and/or low in the goods (resources) that Aristotle wrote about. Even so there is also a strong genetic link: in the USA, recent epidemiological evidence indicates that four of five such people are male, so that the ironic comment one might make is that this is a disorder of the Y chromosome. Epidemiological evidence shows that substance abuse disorders are twice as common in men than in women. The probability is that these states of addiction are attempts at self-medication to moderate the effects of emotions of different kinds. Alcohol, for instance, is probably the world’s earliest psychoactive drug, and its principal effect is as an anti-anxiety compound.

Most explicitly, a so-called mental breakdown typically includes the emotional disorders of depression or anxiety, or frequently both. In the West, disorders of these types are approximately twice as common in women as men. To suffer from an emotional disorder does not mean that emotions as such are disordered: rather, a person’s life has become so disordered that she can no longer cope with ordinary living. The person’s negative emotions—despair, hopelessness, anxiety, angry frustration—
come to dominate life and role relationships. If someone has a psychiatric breakdown of a non-psychotic type, such a breakdown almost always includes depression, and in the USA its lifetime prevalence is 19% (14% for men, 24% for women). When people become depressed, they typically come to regard life as hopeless and unsustainable. Many contemplate giving up life altogether, and suicide becomes a substantial risk. Depressed people have been found to suffer biases of memory: their minds tend to fill with memories of incidents of loss and defeat. They come to see the current world in the same terms. Planful activity of the kind that is essential to flourishing becomes difficult or impossible.

The most important research on the causes of depression has been conducted by George Brown and Tirril Harris. They developed a method in which they interviewed women both to determine who had recently become clinically depressed and to find if, preceding the onset of any depression, there had been any severe adversities. These adversities included events such as bereavement or separation from loved spouses, children, or parents; also severe protracted difficulties such as marital conflict, or unemployment and consequent lack of income. They found that of the women they interviewed who became depressed, 89% had suffered a severe adversity in the year before their depressive breakdown. Among women who were not depressed, severe adversities were found to have been far less frequent.

The adversities described in this kind of research are the accidents of misfortune that Aristotle discussed. Note that, for the most part they are accidents of the loss of roles: marital breakdown, for instance, deprives people of a central means for experiencing themselves as lovable and as loving. Unemployment not only deprives us of money (external resources), but of the sense of contributing to society in a worthwhile way.

In much of the research literature on this issue, the adversities that trigger emotional disorders are known as stresses, or stressors. They act in relation to vulnerabilities of predisposition that each person has that derive from genetics and from experience earlier in life, for instance experiences of early loss or of chronic lack of resources such as money. But a number of factors in people’s lives protect us from the impact of stresses and from vulnerabilities. Most important among these is social support from intimates and others in the community. Social support is not just practical; it means having people in our life who contribute to making life meaningful. A man who, for instance, is fired from his job and is unable to find new employment is liable to be sad and angry. But he is less likely to become depressed if he has supportive relationships with a family and friends outside the workplace. In other words, loss of a role always causes emotions; it is less likely to cause breakdown and an emotional disorder if the elements of selfhood can be experienced in roles and in relationships with others that are not affected by the loss.

Mental health is thus sustained by a web of relationships—at home, among friends, in the workplace—that are rooted in emotions. Depression is a deep crisis of identity. For most people, selfhood cannot be sustained alone. So if, in bereavement or deep disappointment, one or more important role-relationships are lost, the self can become hard to sustain. The sufferer can fall into that state of hopeless despair in which the world is bleak and the future holds no promise, known clinically as depression. Most
effective in protecting from this effect, when the accidents of adversity strike, are other people who offer love and respect. Anti-depressant drugs, and some kinds of psychotherapy, are also somewhat effective in relieving some of the symptoms of depression, and consequently in reducing the risk of suicide. These do not, of course, change the circumstances that contributed to causing the depression. They can help the person enter more planfully into building new social interactions, the seeds of new life, and recovery from depression.

Comparably, many people in their lives suffer clinical anxiety states; the lifetime prevalence of such disorders in the USA is 25%, and this figure is comparable to that for other Western countries. Such disorders involve some genetic predisposition, but people typically become clinically anxious in response to a severe threat to their way of life or to their systems of belief. Such people’s cognitive systems switch chronically to states in which their attention is focused largely on issues of safety and protection. They lose confidence in being able to conduct themselves in the ordinary world, they give up previously held aspirations, and withdraw into themselves, or into what they regard as a haven that is relatively safe from threat. Unlike episodes of depression, most of which tend to get better over a period of months, anxiety states such as social phobias can persist over a lifetime. They too, however, can be ameliorated by drugs—tranquillizers—and by various forms of psychotherapy.

The syndrome of post-traumatic stress disorder is an especially striking clinical anxiety state. This syndrome affects people who have suffered war, torture, or civil disaster, and who have had their lives and systems of value upturned. They can become severely disabled by their experience, chronically anxious, and may experience vivid memory flashbacks to the disaster that occurred.

To summarize, we can say that human beings exist in and are to a considerable extent constituted by the roles they occupy: spouse, parent, friend, employee, and so forth. Severely adverse events such as bereavement and severe difficulties such as continuing poverty are adverse because they deprive people not just of external goods, but also of productive and affectionate roles wherein they can experience themselves as worthwhile, and by which they can take part in the social world. When adversity strikes, women have a tendency to respond by depression and anxiety, while men have a tendency to respond in terms of anger and substance abuse.

Self is therefore not just the-self-alone, but self-with-others. As is made clear by the research on depression, if the sustenance offered by such others is removed by the accidents of ill fortune, then selfhood becomes vulnerable. This point is central to understanding the relation of emotions to mental and physical health.

Let us emphasize this from a book by Primo Levi, If This Is a Man. Levi was an Italian partisan during World War II. He was captured and sent to Auschwitz concentration camp in 1944. In one way he was lucky: he survived, one of a tiny number of people to do so. The effect of the camps, as he describes, was the total removal of all roles, of all sustenance of selfhood in other people. As Levi puts it: “Part of our existence lies in the feelings of those near to us. This is why the experience of someone who has lived for days during which man was merely a thing in the eyes of man is non-human.”
5. Psychosomatic Health

Research in recent years has shown that many more illnesses are affected by stresses and other psychological and social factors than were previously thought. There is growing evidence that stress (or its consequent emotions) affects the physical body’s immune system in ways that diminish the system’s effectiveness. This diminution has effects of three kinds. First, it diminishes people’s ability to resist bacterial or viral infections, such as pneumonia. Second, it diminishes the body’s ability to inhibit the formation of cancerous growths, such as breast cancer. Third, it can decrease resistance to autoimmune diseases such as rheumatoid arthritis. Here are two compelling examples.

Ramirez interviewed 50 women who had operable breast cancer and had relapses, and 50 women with the same type of cancer who had not relapsed. Each woman who had a relapse was carefully matched in terms of the kind of operation, the type of treatment, and the progression of the disease to another woman who had not relapsed. For each woman the number of severe adversities was measured in the way pioneered by Brown and Harris, discussed above. The period of this measurement was from the original operation to the recurrence of the cancer, or for an equivalent period for women who had not relapsed. A severe adversity significantly increased the risk of recurrence of cancer: there were nine pairs of women in which the woman with the recurrence had a severe adversity while the one without a recurrence had no severe adversity. Only one pair was found in which a woman without a recurrence had a severe adversity while the woman with a recurrence had not. On statistical analysis these figures make it extremely likely that the stresses of severe adversities had played major parts in the recurrence of cancers.

Kiecolt-Glaser et al. have conducted studies of wound healing, for instance after surgery. The studies included making small standard wounds either by means of biopsy needles or by making standard blisters on the skin by suction. People who were under stress because of caring for spouses who were suffering dementia, or even the far milder stress of taking examinations, were slower to heal than comparison people who were not stressed. The stressed people had more negative emotions, and impaired immune systems.

6. Population Health

Rather than thinking it remarkable that the mind can affect the body in the way just described, we believe that a better understanding can be achieved by thinking of the flourishing of body and mind as bound closely together in the interactions of individuals with their environment, particularly the social environment. In this section we approach the problem from, as it were, an opposite direction from that of the emotions and emotional disorders of individuals. We approach from the direction of the epidemiology of populations. Perhaps surprisingly, however, this approach prompts a similar conclusion to that reached by studying the emotions and emotional disorders of individuals.
It has long been known that the level of health of populations is closely associated with a number of non-health factors. Edwin Chadwick’s mortality tables of 1842 indicate that the level of child mortality of Britain at that time can be correlated with the level of father’s occupation. Figure 1 shows a result redrawn from Chadwick’s report of how the expectation of dying young (mortality) increases with decreased resources (lower socioeconomic status). Essentially this same kind of result, what is called a “gradient” of poor health (morbidity) and premature death (mortality) increasing as a function of lower social status, has been obtained in every country where these issues have been studied, ever since Chadwick’s 1842 report.

![Figure 1. Proportion of children to all deaths (childhood mortality) as a function of the social class of their parents](Redrawn from E. Chadwick, Report on the Sanitary Conditions of the Labouring Classes (London: HMSO, 1842))

In other words, health, like other measures of flourishing, is dependent on what Aristotle called external goods, resources. Gradients of a wide variety of health indicators along social class lines have been a very prominent feature of epidemiological studies. They became even more apparent when statistical data began to be gathered using more formal definitions of social class in Britain early in the twentieth century. A standard epidemiology text provides a good example: “Cancer of the stomach, myocardial degeneration, pneumonia and ulcer of the stomach have a definite rising gradient from Social Class I to V.” (See Glossary for definition of social class.) Infant mortality followed these gradients in studies in 1932, and continues to follow them. The lower people’s social class, the worse is both their health and the health of their children. Putting it the other way round: the more people possess the goods of money and status in society, the more they and their families are able to flourish.
The Black Report of 1980 was a landmark study of health inequalities in the United Kingdom despite a National Health Service that made medical health care available to all on an equal basis. It provided clear and more complete evidence of gradients of socioeconomic status closely related to differences in health. An important finding from such data is that countries that have less disparity between rich and poor not only have less steep gradients of inequalities in health, but have better average levels of population health for their whole population. The political conclusion is that if a particular nation wants better population health for the whole of society, it needs to provide for more equitable distribution of resources.

“Why are some people healthy and others not?” This is the question that prompted a recent publication by Canadian researchers on inequalities in health (Glouberman, 2000). They amassed population-based evidence in a systematic and integrated way in an attempt to understand how different factors influence health. The result has been to demonstrate that social environments have a far stronger impact on health than do individual behaviors. Trying to understand these social-structural dimensions has become a central focus of their research. Health promotion researchers recognized these impacts but on the whole have not engaged in the detailed empirical research needed to identify the correlation between social gradients and health status and to explain the interaction between these factors.

Researchers on inequalities in health have attempted to integrate evidence of what is known about identifiable factors that influence health over the life course from large-scale population health studies. Along the way, evidence regarding the relative contribution of health care, the physical environment, and genetics has been assessed and the conclusion has been that these factors are far less critical than the social environment, the social roles, and the resources that people have over the course of their lifetime.

Researchers in inequalities in health have “drilled down” into various social determinants and assessed the significance of more particular factors. After showing that the rank of civil servants was a good indicator of morbidity and mortality, British researchers led by Michael Marmot began to look more carefully at the nature of work and how it is done. Some of these studies indicate that status and lack of control over work contributes significantly to ill health. In fact, after correcting for smoking, alcohol consumption, and nutrition, Marmot and his collaborators found that status and control over work was the most significant contributors to heart disease in the population studied. Putting this into the terms of this article, people at the top of the status ladder, like Aristotle’s full citizens, possess the goods of body, soul, and the outside world. They have many opportunities to flourish: to be happy and healthy. By contrast, those at the bottom of the status ladder have more experience of frustration: less opportunity for choice and for leading a flourishing and healthy life.

Other studies have been of particular components of people’s lives. Correcting for other differences such as smoking, nutrition, and other health-related behaviors, studies have shown that hopelessness is closely tied to cardiac disease. A recent study of 2500 men in Finland used measurements of the blood flow in people’s carotid arteries and found
that hopelessness was closely correlated with the onset of atherosclerosis (hardening of
the arteries, an important contributor to cardiovascular disease).

All such data indicate that a lack of flourishing can be expressed in different ways, in
terms of both emotions and health. These two are so closely connected as to render the
distinction between mind and body less stark than it once seemed. Certainly the data on
stress and the data on social class gradients in health imply the need for fresh
consideration of the nature of health. Just as our understanding of emotions is enriched
by recognizing that emotions are best understood in terms of the interaction between
people and their social environment, so the nature of health can be better understood in
just these same terms. Glouberman suggests that there are three main elements in
concepts of health: the individual, the social context, and the modes of interaction
between them. If these ideas are applied to an understanding of health, three traditions
for thinking about health emerge, each of which stresses one of the three elements.

The medical tradition has for a long time focused on the individual organism. Major
advances in medical knowledge have resulted from an ever-deepening understanding of
the physiology and psychology of the individual person. Interventions on the individual
body seek primarily to prevent illness, and even more frequently to cure illness once it
has occurred.

Edwin Chadwick was a leader in a second tradition, which looks beyond the body. He
argued that medical intervention by doctors is a lesser contributor to the health of an
individual than is the environment. This emphasis on environmental factors is a strong
part of the public health tradition that he helped to start. It grew from his efforts in the
Sanitarian movement and can be traced through ideas of health promotion and current
work on the inequalities in health. Increasingly this tradition emphasizes the social and
economic environment as having the greatest single long-term influence on health. No
provision of doctors and hospitals would outweigh the importance of clean water and
food, and the safe disposal of sewage and other waste.

A third view of health, which focuses on interactions between individuals and their
environment, began to be articulated at the end of the nineteenth century. It focuses on
health and illness in relation to people’s capacities to engage in their social and work
environment. These ideas help us to understand health in terms of the interplay between
individuals and their social context. Recent research among refugees and others who
have suffered the severest disruptions of their lives indicates that here, too, even in the
most dire circumstances, resilience depended on a viable and realistic life philosophy.
This work echoes Aristotle’s description of the fine person as one who can cope with
misfortune.

Some of the ideas of complex systems can help articulate this understanding of concepts
of health and emotions. Where once it might have been imagined that perfect health was
as attainable as some state of equilibrium in a clockwork mechanism, we now realize
that health is complex, shaped by interactions among numerous, perhaps countless,
forces from many different spheres of influence ranging from the molecular to the
social-relational and the economic. Attempts to consider the human body as the single
site for the study of health are insufficient.
This way of looking at human health is in many ways parallel to our growing understanding of human emotions. We are beginning to recognize that emotions are best understood in terms of this kind of complex interaction between people and their environment. The particular emotional state of individuals may then be differentiated in terms of what they bring to such an interaction as well as what is brought by the event in the environment.

The development of the immune system can serve as a metaphor for the development of health and emotional maturity in humans. The capacity of the immune system to fight disease and restore health is a function of the interaction between the organism and the environment. We understand that the strengthening (and weakening) of the immune system occurs partly as a result of the biological structure of the organism, and partly as a result of its interaction with numerous and complex environmental influences. A strengthening immune system can tolerate and respond to contact with external events in an appropriate way. It will not overreact, as it does in the case of an allergy, or under-react as it does in the case of an infection that gains a hold. In a similar sense the development of emotional capacity may have a lot to do with the strengthening or weakening of the emotional immune system to tolerate and respond to events and adversities that affect the person. Developing this analogy further suggests that the place of socioeconomic circumstance is similar in cases of emotional as well as physical health. In both cases the range of socioeconomic resources available to people are relevant to their capacity to interact positively with environmental events.

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Glossary

Appraisal: A technical term in the modern cognitive psychology of emotions, meaning the evaluation of an event in relationship to a concern; features of the appraisal such as the degree of involvement of the self, whether the event can be dealt with and so forth determine whether an emotion will occur and, if so, what kind of emotion it will be.

Emotion: A process that includes mental preoccupation, an urge to act in an emotional way, and bodily symptoms that is typically triggered by an event that affects an important concern of the person experiencing it; also a mode of setting up a certain kind of relationship, for instance of affectionate cooperation, or conflict.

Emotional disorder: A psychiatric, or mental, disorder in which a person is unable to cope with ordinary life, and in which strong emotions of sadness, despair, and anxiety are prominent.

Eudaimonia: Aristotle’s term usually translated as “happiness,” but also as “flourishing,” or “well-being.”

Health: A state of flourishing of mind and body, strongly influenced by interactions with other people.
Mortality: The proportion of people in a population who die young in relation to the total deaths in that population.

Plan: A term used in psychology to indicate a train of action leading to some goal, or addressing some concern.

Population health: The health of whole communities or countries, an important measure both of an economy and of personal well-being and happiness.

Prevalence: The proportion of a specified population suffering from some physical or mental disorder during a specified period. Lifetime prevalence means the proportion of a population of people who have suffered an episode of some disorder at least once in their life.

Role: Term used in social science to designate the outline frame for an ongoing kind of social interaction with others.

Socioeconomic status: The status of a person in the social hierarchy. In North America it is measured by income and/or years of education. In Europe it is measured in terms of occupation and its class connotations; thus Social Class I is professional and managerial people and their families; Social Class V is unskilled workers and the unemployed and their families.

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Marmot M. (2000). Inequalities in health: causes and policy implications. The Society and Population Health Reader: A State and Community Perspective (ed. A.R. Tarlov and R.F. St. Peter), pp. 293–309. New York: New Press. [Marmot is the author of the famous Whitehall studies of British civil servants, whose health was found to depend on their status, although their access to health care was the same. The book in which this article appears is a useful reader on population health.]


Biographical Sketches

Keith Oatley was born in London, England. He has lived in Toronto since 1990. He was educated at the University of Cambridge and the University of London, and before moving to Canada he worked at the University of Sussex and the University of Glasgow. He is a professor of cognitive psychology at the University of Toronto, where he is chair of the Department of Human Development and Applied Psychology. His research is on emotions and their effects, on the influence of adversity on emotional disorders such as depression, and on the cognitive and emotional processes that occur when people read fiction. He is a Fellow of the Royal Society of Canada, the author of more than 120 journal articles and chapters, five books of psychology, including Best Laid Schemes, and (with Jennifer Jenkins) Understanding Emotions. His first novel, The Case of Emily V., won the 1994 Commonwealth Writers Prize for Best First Novel, His second novel, A Natural History, takes readers inside the mind of a scientist in 1849, trying to discover the causes of infectious illness.

Sholom Glouberman was born and grew up in Montreal, Canada; he holds a Ph.D. in philosophy from Cornell University. He has spent many years applying analytic methods to the study of organizations and systems primarily in the notoriously intractable area of health. In the U.K., he works with community services organizations and chief executive officers of hospitals and purchasing organizations. In Canada and the USA, his clients have included everyone from human resource executives to psychiatrists, and most types of organizations, including governments, hospitals, and voluntary organizations. He lectures widely. His recent publications include Beyond Restructuring, a collection of papers from a King’s Fund seminar, and “Towards a New Perspective on Health and Health Policy” (2000), the result of a major policy research project.

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