



Is a Merry Heart Like a Placebo?

Science is slow in supporting what many assume is self-evident—a healthy body presupposes a cheerful disposition.

by Gary Gilbert

CINDY SHIVERED AS SHE SAT ON THE EXAMINATION table in the medical clinic with the skin on her bare arms puckered into goose flesh. She dabbed her nose with a handkerchief and sniffed before talking. "I've been under a lot of stress," she said. "My boyfriend is mad at me, and I've been missing work too often. I'm afraid I might lose my job. This stress must have knocked out my immunity because I never get sick. Now I'm congested, my throat is sore, and my head hurts." I examined Cindy, explained to her that she was likely experiencing a viral infection, and reluctantly wrote out the antibiotic prescription that she insisted would make her well more quickly.

Two days later, I was in the oncology clinic with Mr. and Mrs. Goodwin. Only two weeks

earlier I had unhappily informed Mr. Goodwin that he had cancer of the pancreas and would not live longer than a few months. Mr. Goodwin slumped in his chair and kept his eyes trained on the floor while his wife talked. "I tell him to stop moping around," she said. "It will only make the cancer worse. He has to think positively." Mr. Goodwin's eyes were glistening when he looked at me.

"I try, Doctor, but I can't feel happy. I feel sad all the time." His shoulders shook and he started to sob. "How would you feel if you knew that you were dying?"

Outside of the examining room, Mrs. Goodwin pulled me aside to say that Mr. Goodwin had been moody for many years. "I think those bad moods may have something to do with this," she said, gesturing toward the room. "When you have bad moods it affects your body. It can make you sick. I heard about it on television. What do you think, Doctor?"

What do I think? Did emotional stress make Cindy susceptible to catching a cold? Did depression cause Mr. Goodwin to develop

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cancer? Will his current mood have any impact upon his outcome? Almost everyone I have talked to has an opinion about the effect of their attitudes upon their health. In my own family, my mother believes that a good mental outlook protects her from colds; and my sister, a psychologist, believes that with a good attitude, she may protect herself against cancer and heart disease. Educated people, as well as uneducated ones, seem to believe in a connection between their emotional well-being and their health.

Stephen Jay Gould, the Harvard paleontologist and essayist, is known for skepticism and is both admired and disdained for debunking myths about baseball players, historical figures, and natural history. He suffered the misfortune of contracting cancer and subsequently, benefited from good therapy and good luck in apparently eliminating the cancer. When he wrote about his cancer he said, "Attitude clearly matters in fighting cancer. We don't know why . . . But match people with the same cancer for age, class, health, and socioeconomic status, and, in general, those with positive attitudes, with a strong will and purpose for living, with commitment to struggle, and with an active response to aiding their own treatment and not just a passive acceptance of anything doctors say tend to live longer."¹ Did Gould do his homework before asserting this claim? Or have I caught him espousing the hopes of Norman Cousins rather than conclusions based upon scientific evidence?

My objective in this essay is to address Cindy's remarks and Mrs. Goodwin's question, "What do you think, Doctor?" More specifically, I will address the questions: What are the physiological mechanisms through which moods and attitudes may influence health? Does mental stress cause susceptibility to colds or to cancer? Does the mood of a cancer patient influence how long he or she will live?

Narrowing the Focus to Colds And Cancer

Everybody knows that the state of the mind can have dramatic and immediate affects upon the body. Children cry from tummy aches when their parents fight. It is not that they have eaten too much fruit or acquired a viral infection; they get physical pain in their tummies because they are upset. Medical students get diarrhea on the morning before a biochemistry test. Again, the diarrhea has nothing to do with the food or water they have consumed, and it is relieved predictably after the test is completed. Most of us can remember a classical demonstration of the mind affecting bodily function: The Russian scientist, Pavlov, who taught dogs to salivate when they heard a bell. After sufficient training, the dogs' minds made the connection between hearing the bell and smelling the food, so they salivated in response to the bell when no food was present. Another classic illustration was performed by Sir William Osler, an American medical educator. He had a patient who reliably wheezed with asthma in response to the scent of a rose. To demonstrate that her response was habitual and no longer required the rose scent, he exposed her to an artificial rose. She began to wheeze.

It is not the existence of a mind-body connection that I wish to discuss, for it is very clear that a connection exists. Rather, I wish to discuss the importance of that connection for the common cold and for cancer. Colds and cancer are more difficult to explain in relationship to the mind than tummy aches, salivation, or asthma. Colds involve a viral infection as well as symptoms from the viral infection. Susceptibility to infection and the reactive symptoms may be modulated by the immune system and possibly by the state of the mind. Cancer is caused by the accumulation of genetic mutations in a cell so that eventually

its daughter cells are able to evade normal growth regulators and the body's immune system. These independent cells are finally able to crowd out normal life processes. Hypothetically, the genetic mutations of cancer, the failure of cells to repair them, and the failure of immune system surveillance in allowing the cancer cells to grow may all be related the state of the immune system or the mind. The many possible ways that the state of the mind may hypothetically influence susceptibility to colds and cancer have given rise to a great deal of scientific investigation and nearly limitless speculation in popular talk shows and magazines.

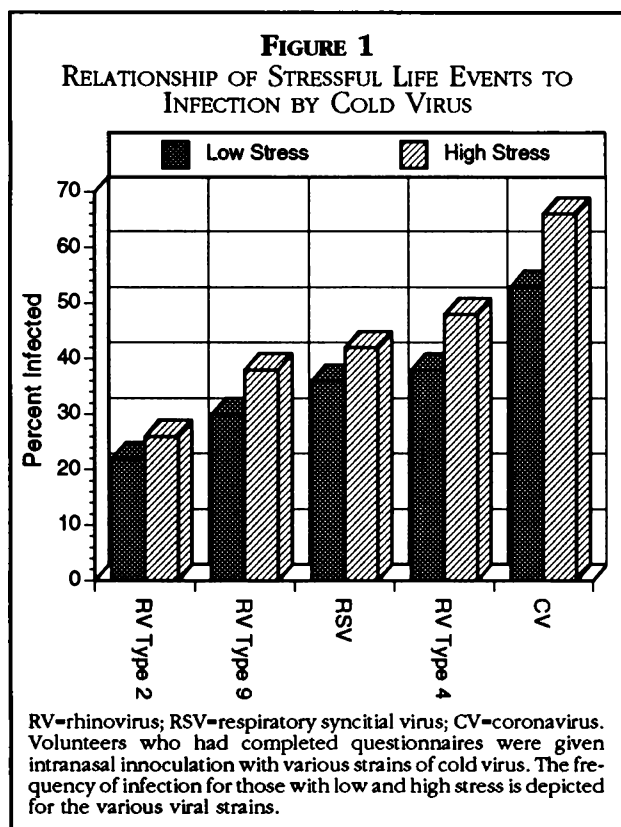
Because of my general skeptical bias, I decided to skip over the myriad scientific studies that indicate that the mind influences one specific immune function or another. Those studies are interesting, and it is fun to speculate about how one immune dysfunction may cause a disease. And there is no shortage of connections between the brain

and immune organs, pathways through which the mind may talk directly to immune cells. Recently, new biochemical connections have been described. These studies only get me halfway to my destination. I wanted to know if the state of the mind actually influences acquisition of and symptoms from a common cold, not whether there is a plausible immune pathway through which that effect may occur. Therefore, I have skipped those studies to sample only studies that have made direct correlations between the state of the mind and colds or cancer.

The mechanism through which attitude is to benefit health is obscure in Ellen White's writing. She mentions the effect of brain "electric power" on the whole system. Ellen White's "electric power" mechanism is not sufficiently articulated in her writings to be either validated or invalidated by more recent findings involving brain function and the immune system. In the late 20th century, we understand the nature of the electrical impulses from the brain more thoroughly than 19th-century health reformers did.

Good Moods Don't Prevent The Common Cold

It is surprisingly difficult to perform scientific studies upon people who suffer from the common cold. If two different people are sick with runny noses, fatigue, and joint aches, does that mean that they are both infected with the same virus? Have they both had the same exposure to the causative virus? Special precautions were taken to perform the study that I believe is the most informative about the effect of mood upon susceptibility to cold infection.² Three hundred ninety-four healthy adults agreed to be isolated from friends and family in a large laboratory where inoculations of cold-causing virus would be squirted into their nostrils. Every person was asked to



complete a battery of questionnaires to determine whether he or she was *distressed*, *nervous*, or *sad*. They were asked whether they had difficulty coping with life and whether they had lost family members, been fired from a job, or suffered other stressful events within the past year. Each person was given a numeric score pertaining to his or her mood, attitude, and the stress to which he or she had been exposed.

After completing the questionnaires and receiving a viral inoculation, the test subjects were observed to see if they developed runny noses and headaches, to see whether nasal secretions contained growing viruses, and to see if they developed an immune response to the virus with which they had been inoculated. After hundreds of people had been studied, the cumulative results began to show a pattern. People who had experience stressful life events within the prior year were more likely to develop a runny nose and a headache after inoculation with a cold virus than those who had not (see Figure 1). Similarly, the chance of virus growing in nasal secretions and developing an immune response to the virus was higher in the people who reported stressful life events.

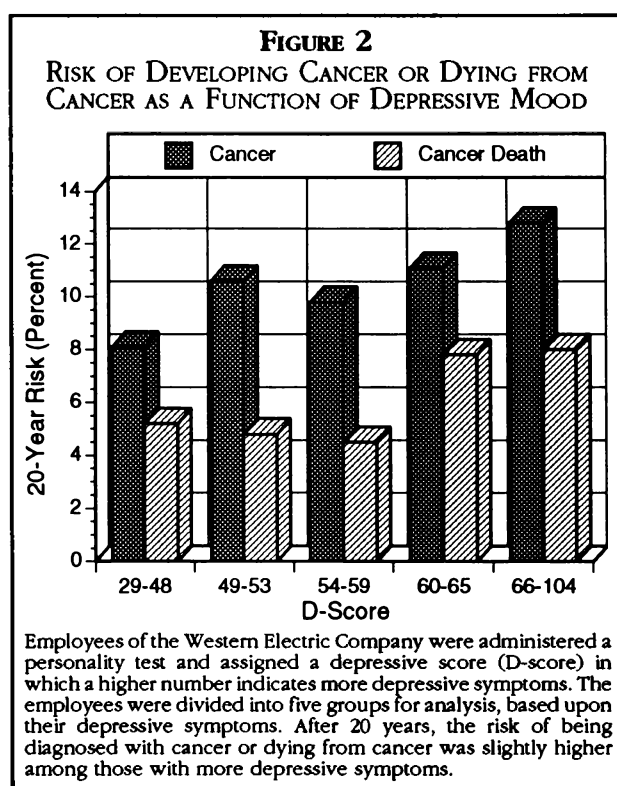
This study suggests that Cindy was right. Stressful life events apparently increase susceptibility to colds. The increased susceptibility was detected in this study in people exposed to all five types of cold virus. To be sure, the difference in susceptibility to virus infection was relatively small. On average, the chance of developing a cold was about 15 percent higher for the people who reported stressful life events than for those who did not. While those who avoided stress appear to have improved their odds, it is worth noting that a much more favorable increase in odds had previously been demonstrated in those who remember to wash their hands and hence avoid exposure to the cold virus.

What about a merry heart? This study did not show any advantage to a good mood or a

good attitude. The happy, confident people got colds at the same rate as those who were sad or angry. This study suggested that the stressful life events increased the risk of a cold without making people sadder, angrier, or more desperate than those who had avoided the stressful events.

Depression Doesn't Lead To Cancer

Do bad moods cause cancer? Imagine how you would answer that question in a clinical study. First you would identify people who have bad moods and others who do not. You might do that by asking people questions using a standardized personality exam. After you determined how optimistic or depressed each person was, you might assign a depression score for each one; for example, 0 might mean no depression at all, and 100 might mean terribly depressed. Then you would have to keep track of all of these people for a



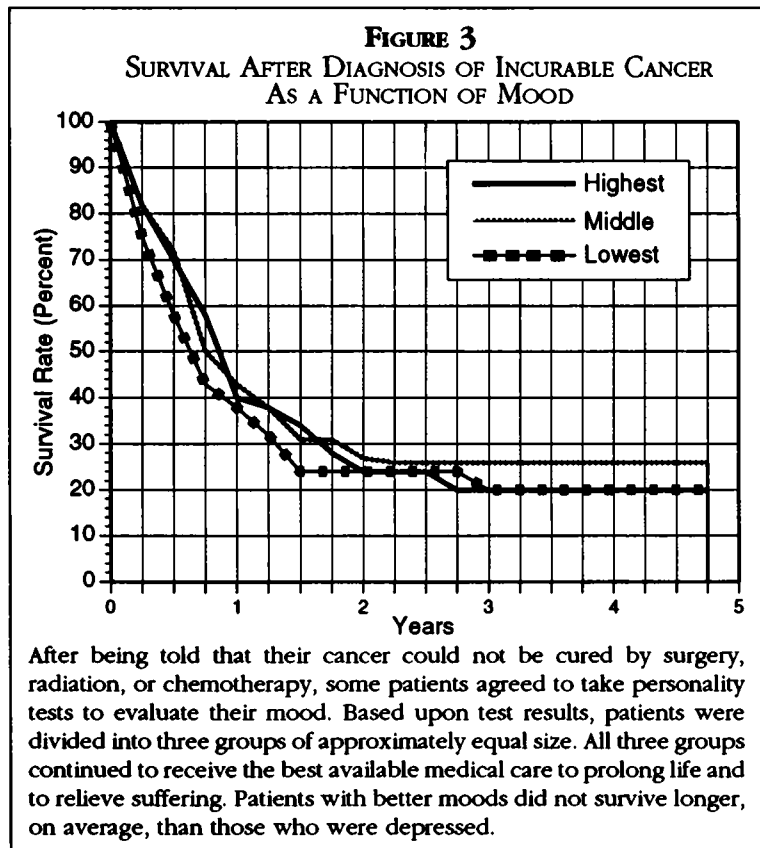
long time to see which ones developed cancer and which ones did not. This is precisely what was done with men who worked for the Western Electric Company.³ The questions were asked using the Minnesota Multiphasic Personality Inventory during the years of 1957-1958. Each man received a numeric depression score—less than 60 was normal, and a higher number indicated a more depressive mood than normal. In 1978, 20 years after taking the test, 2,018 men were located and the number who had contracted cancer and the number who had died from cancer were counted. The men were divided into five groups, according to their depression scores, to analyze the risk of cancer (see Figure 2). The men who were in the more depressed groups had acquired cancer at a higher rate than those from the non-depressed groups. In addition, men in the depressed groups had a higher risk of dying from cancer than those who were less depressed. The risk of dying

from cancer also appeared to be higher in those with an increased depressive score. By statistical analysis, however, the authors concluded that there was greater than a 5 percent likelihood that the association between cancer diagnosis and depression may have occurred by chance. In contrast, the increase in cancer deaths in the depressed men was not likely to have occurred by chance.

The scientists who conducted this study also asked the men how old they were, how much they smoked and drank, and whether family members had been diagnosed with cancer. You might suspect that the men who were depressed were more likely to smoke or were older or had family members who died of cancer. The scientists did not find any of these results. Only the higher depressive score corresponded to a higher cancer risk.

The Western Electric study suggests that men who are depressed have a cancer risk about 11 percent over 20 years versus 9 percent for the nondepressed. They have an increased risk of dying from cancer of 8 percent versus 5 percent over the same time interval. The increased risk from depression is small by comparison to the cancer risk from cigarette smoking or radiation exposure. It is substantial, however, when compared to the risk of early death from mild hypertension (mild high blood pressure) or mild hypercholesterolemia (mildly elevated cholesterol). These results support the contention of Mrs. Goodwin, who suspects that depression contributed to her husband's cancer, and the contention of Ellen White that bad mood may cause lethal diseases.

I have discussed the Western Electric Study because it is the study people quote most frequently as establishing a relationship between depression and cancer. If it were the



only scientific study that had addressed the relationship between depression and cancer, then we would conclude that evidence supported that relationship. But the Western Electric Study is not the only study to have addressed the issue, and it is not the best. The weakness of the Western Electric Study is that there were only a few patients who were depressed and had cancer. While the initial group of 2,020 men was large, only 389 men were clearly depressive and only 31 of these died of cancer. For comparison, 20 men died of cancer in the group of 382 men who were least depressed. A difference of 11 deaths between the highest risk and lowest risk groups is a small enough difference that a little bit of good luck in one group or a little bit of bad luck in the other—rather than depression or optimism—may account for the difference.

In a larger study, 9,000 patients with abnormal mood, including many with depression, were compared with 9,000 people with normal mood.⁴ Over a period of 25 years, the risk of cancer was the same in both groups. In yet another study, 9,727 people filled out questionnaires designed to see if they were depressed, and the frequency of cancer was evaluated 10 to 15 years later.⁵ The risk of cancer was the same among the people who had depressive symptoms and those who did not. The combined weight of these studies has led most doctors to conclude that the Western Electric Study showed an association between depression and cancer because of chance, not because of a real association. Editors in most influential medical journals have taken that position. Marcia Angell, of the *New England Journal of Medicine* concluded, “. . . the combined evidence . . . is clearly not consistent with a strong relationship between depressive symptoms and cancer . . .”⁶ These studies do not entirely exclude a relationship between cancer and depression, but for the average person they

suggest that this relationship is not worth worrying about. Far better to use one's energy to avoid cigarettes and violence, exercise regularly, and eat lean foods.

Good Humor Doesn't Cure Cancer

Mrs. Goodwin believes that her husband, who has cancer, could live longer by thinking positively, that he could fight the cancer if he only tried. Norman Cousins popularized this approach and gave it respectability. Outside of his dramatic and well-told personal experiences, however, he provided little evidence that thoughts and mood have any effect on the outcome of illness.

Researchers at the University of Pennsylvania Cancer Center conducted a clinical study to determine whether optimistic cancer patients lived longer or had a lower risk of cancer recurrence than pessimistic or depressed patients.⁷ Two hundred and two patients whose cancer could not be cured by surgery agreed to complete a questionnaire evaluating their mood and attitude. The researchers divided the patients into three groups based upon their mood scores. We could call the groups the optimists, the realists, and the pessimists. Each patient received the best available therapy for his or her cancer. After five years, all three groups of patients had done equally well—or equally poorly (see Figure 3). Approximately 80 percent of the patients from all three groups had died. The optimists did not live any longer, on average, than the realists or the pessimists.

Another 155 patients who had recently had cancer successfully removed were asked to fill out the questionnaires. These patients had either melanoma, a skin cancer, or breast cancer. All of the patients had a 15 to 50 percent risk that the cancer would return elsewhere in their body. The researchers wanted to know if the effect of attitude might

be more pronounced in patients who were not as severely ill. Perhaps an optimal immune system would be able to eradicate a microscopic residual cancer even if it was no match for a large cancer which was inoperable. In this group of patients, the researchers monitored how many of the patients had cancer recurrences. Similar results were obtained as with the other study. The recurrence of cancer was just as common with the optimists as with the pessimists. Actually, the middle group—the realists—fared slightly worse than the optimists or the pessimists, but the difference was not statistically significant.

The results of this study contradict the belief of Mrs. Goodwin, Norman Cousins, Stephen Jay Gould, and my mother. The length of time a patient survived with cancer was not influenced by his or her attitude. Hopefulness, well-adjustedness, and strong social ties did not influence survival. The length of time a patient lived was influenced by age, the type and location of cancer, and prior health.

Benefits Are Hard to Prove

When I started to read medical reports in preparation for this essay, I was aware of the Western Electrical Study, which suggested that depression may cause cancer, and the British cold study, which suggested that stress influences susceptibility to colds. Because of these studies, I suspected I would find evidence that attitude influences susceptibility to disease. In contrast, the best studies that I have been able to find suggest that the effect of attitude is not detectable. While emotional stress affected susceptibility to colds, attitude did not. That is, stressful events such as the loss of a loved one or the loss of a job increased the risk of catching a cold—whether or not the person felt sad or that life was out of his or her control.

Likewise, although the Western Electric

Company showed an association between depression and death from cancer, two larger studies did not. Furthermore, a favored idea of Norman Cousins and other mind-over-body advocates—that cancer may be held at bay by sustained laughter or by cerebral command of battles between lymphocytes and cancer cells—was not supported by these studies. To be fair to the mind-over-body advocates, I admit that the approach of patients being instructed to imagine their immune cells attacking cancer cells was not tested in these studies. Even so, the advocates of this type of approach claim that the benefits are indirect—they claim that the person gains a sense of control and hope, and it is these feelings that lead to remission from cancer or prolonged life. Nobody actually believes that the patients have cerebral control over specific lymphocyte attacks. The results from the Philadelphia cancer survival study did not give even a hint that these feelings of hope or control prolong survival from cancer.

You may now have the impression that I am claiming the mind has no effect on health. Not true. The short-term effect of mood upon some diseases has been dramatically demonstrated. For example, people with atherosclerosis of coronary arteries can have an immediate narrowing of those arteries in response to fear. In other people, asthma attacks predictably follow anxiety or anger. And I have not approached the claims that personality type influences health. Certainly you have heard something of the claim that “type A” personality causes coronary heart disease, and possibly of the Yale Medical School study suggesting that good health is associated with a personality type.

Nor am I ready to say that the mind has no effect in dealing with cancer. In two recent studies, cancer patients who had been randomly selected to participate in support groups lived longer than the patients who were not

selected. Although the reason for the improved survival was uncertain, it is hard to imagine that a support group could affect survival through a pathway other than the mind. In these studies, it did not appear that participation in a support group caused a change in attitude; attitude questionnaires did not indicate such a change. I believe that it is still possible that some types of connectedness with people or some state of the mind that scientists have not learned to measure affects resistance to cancer.

And what are we to do with the claim of Solomon that "A merry heart doeth good like a medicine"? If I am sick with pneumonia I will take penicillin, and if I develop diabetes I will take insulin, without regard to my mood. If, however, I develop pancreatic cancer that cannot be removed by a surgeon, I will know that chemotherapy and radiation therapy are not likely to be more effective than a placebo. I just might order videotapes with funny movies, preferring the merry heart to the chemotherapy that may do so little to improve my life.

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