

Mind and Disease

Renato M.E. Sabbatini

It is already popular knowledge that adverse psychic states such as stress, depression, anxiety, anger, and so on, favor the development of organic conditions such as stomach and duodenal ulcer, colitis, myositis (muscle inflammation), dermatitis (skin diseases), diabetes and even cancer. It is estimated that some 50% of humankind diseases are linked, directly or indirectly, to psychological dysfunctions.

Is there any scientific truth in all this? The knowledge about this area has evolved so much from the 1930s onwards, when it was discovered the part of the nervous system that controls our internal organs and many involuntary functions, the so-called Autonomous Nervous System (ANS). The American researcher, Walter Cannon, studying physiologic phenomena that accompany emotions in human beings and animals observed that, when dealing with a danger situation, our body undergoes profound internal changes.

Part of the ANS, called the sympathetic system, is triggered and dilates the pupils, diminishes the blood flow to the skin and increase it to the muscles, brain and heart, dilates the coronary arteries, increase the metabolism by adrenaline release, the cardiac and respiratory rates, and so on. All these play a biological role that is to prepare the organism to fight, to defend itself or to escape and last a few minutes, since it is an emergency reaction.

In the case of a chronic situation of emotional or psychological trouble, this reaction perpetuates, causing innumerable dysfunctions and even permanent organic damage, such as coronary blockage, stomach and duodenal ulcers and so on. The Canadian physician and researcher Hans Selye, in 1950, baptized this as stress. He discovered that there is a huge activation of the hypophysis-adrenal axis. The glands secrete very important hormones, which control many of our internal metabolic and physiologic functions ranging from the production of spermatozoids to the reaction to inflammation and external bacterial agents. The healthy states of the tissues, of the immunological system, and so on are profoundly altered by some of these hormones, such as corticosteroids. Negative emotions and chronic stress, then have the capacity of affection our resistance against diseases, and people who suffer them can become ill, giving way to psychosomatic conditions.

More recently, a branch of medicine called psychoneuroimmunology has studied the relationship between immunological system, which protects us against deviations from internal stability and psychic troubles. It is already known, for instance, that stress and chronic anxiety, cause profound changes in our capacity of immunological defense. If a person gets sick by purely organic reasons (let say, by developing AIDS), the internal reactions to fight the invading organism and the resistance to opportunistic infection s are greatly altered by the psyche. Even cancer can take advantage of people chronically depressed due, for instance, the death of a beloved person, by separation, or death of a child.

It is not known precisely which mechanisms are involved in the pathologic changes of the immune system by the brain, but we already have some clues. A part of our brain, closely linked to emotional behavior, that is named hypothalamus, secretes several releasing hormones that act upon the hypophysis, activating it or inhibiting it. The hypophysis, on its turn, does the same on several target glands. For instance, one of the hormones involved in the immune reaction is the ACTH, or corticotropin, which is released by hypophysis in response to the hypothalamic hormone called CRH. Corticotropin affects the secretion of corticosteroids, which modulate, among other things, inflammatory reaction of tissues and the production of antibodies. There also strong evidence that genetic mechanisms of the cells are altered by the increased secretion of cortisol. Gene functions are altered, as well as protein synthesis, and cell membrane permeability, leading even to the death of the neurons, if they were stimulated in excess (excitotoxicity).

All this shows us that there is a close relationship between mind and disease. The corollary is that the healthiest we are, from the emotional and psychic point of view, the better our organic health will be.

The ancient already said that good humor keeps the diseases away, and scientists now know that there is truth in this saying. Modern life brings tremendous and lasting stresses to many people. Competition and authoritarianism in the working place, aggressiveness between people, confuse and dangerous driving, fear of being robbed or killed or of losing the job, crowds, all these are affecting enormously people's health.

The mind-body relationships also explain many therapeutic effects of convention medicine and the apparent success of alternative medicines. If someone firmly believes that is going to be cured by something, such as "Bach florals", or any other placebo, he/she really can self-heal, thanks to the modulation of immunological system by the mind. This phenomenon, has been recognized universally and it has been called shamanism. It is what actually takes place when a shaman or a primitive medicine man promotes cures by the effect of his simple "miraculous" authority and connection with "evil spirits" that obey his commands of departing from the body of the sick person. Modern medicine does not manage to escape from his phenomenon, despite disposing of an arsenal of drugs, surgical procedures and other powerful curative tools. Even post-surgical effects of a complex and radical surgery, such as a heart transplant, can be affected, at the end, by the patient's psychic reactions.

Published at: *J. Amer. Ass. Med. Transcript*, 21(2): 29-32, March/April 2002.

The Author

[Renato M.E. Sabbatini](#) holds a doctorate in neurophysiology by the Faculty of Medicine of the University of São Paulo at Ribeirão Preto, Brazil, and was a guest scientist and post-doctoral fellow at the Max Planck Institute for Neurobiology in Munich, Germany. He is currently chairman of medical informatics and adjunct professor at the Faculty of

Medical Sciences of the State University of Campinas, in Campinas, Brazil; associate editor and chairman of the editorial board of ["Brain & Mind" Magazine](#).
Email: rsabbatini@gmail.com