

The Placebo Effect -- Is It of Medical value?

By Edvard A. Hemmingsen

Rituals performed by the medicine man to heal tribal members, herbal remedies of past Chinese cultures, therapeutic use of sugar pills in our own time, and many other means for purported healing often have relied on a single phenomenon: the placebo effect.

This effect may be broadly defined as a psychological or psychophysiological therapeutic effect produced by a placebo. The placebo may be an inert sugar pill or a saline injection which the patient believes contains a beneficial substance. Or it may be a device said to emit healing rays, a massage totally unrelated to the nature of the disease, or an aura of professionalism generated by a white-coated reassuring person in a room with credentials on the wall. Indeed, it may be any factor or procedure which helps the patient feel better.

Physicians and other health care workers have been aware of this phenomenon for a long time, but they have been reluctant to include such a non-scientific effect overtly in their therapeutic tools, because it could not be predicted, measured or reproduced. Another reason may be the stigma associated with the word "placebo". It is derived from Latin, meaning "I shall please". It is the first word of the vespers for the dead in the Roman Catholic Church. Over the centuries it has acquired a negative connotation and, when it first entered medical terminology, it was used to describe medicine given to patients to please them rather than to actually cure the underlying disease state.

The placebo effect only began to come under scientific scrutiny in the 1950s, when double-blind clinical trials were introduced for testing the efficacy of pharmacological agents. It revealed itself statistically in large groups of patients when, for example, one segment of the group was given a sham treatment (the placebo) while the other was given the active treatment. Part of the group receiving only the placebo would claim beneficial effects. Depending on the disease and the symptoms, the fraction that responded to the placebo ranged from a few percent to about half of placebo group.

With such notable results, why cannot placebos be put to regular therapeutic use? They can, in many situations, but only if we distinguish between disease and illness. A disease is an abnormal state of the body, something a physician can see, measure or otherwise identify. A cancerous growth, a lung infection or a blocked artery are such examples. Illness is what a patient feels and suffers, for example, pain, nausea, fatigue or insomnia. Although there is some blurring in the separation between the two areas, the medical community generally agrees on this point: placebos can be of help for illness, but rarely cure a disease.

It has been firmly established by many studies that placebos can lessen pain and other subjective suffering in some patients, at least for short periods. This is often the combined effect of (1) the patient's perception and (2) the body's natural healing process that progresses with or without the placebo. But it is also recognized that certain mind-body interactions do occur and may play a role in some instances. The mind influences certain physiological

functions. Stress, for example, may elevate blood pressure or alter gastric secretion; strong fears may lead to heart arrhythmias and even death. Thus, the reduction of fear, anxiousness and stress when it is accomplished by the use of placebos can be very beneficial.

The body has a remarkable ability, with its immune system, to fight off diseases and promote self-healing. It constantly depends on this system, whether the threats arise from the breakdown or misbehavior of its own cells or invasion by bacteria, viruses and parasites. Barring certain epidemic assaults and severe body traumas, only occasionally do these defenses fail and lead to problems. This feature is central in the evolution of higher animals. Without it our planet would be inhabited only by simpler forms of life.

Recognized mind-body factors which may influence the immune system are stress and anxiety. This has been demonstrated in both humans and animals. For example, stress increases the secretion of certain hormones which in turn can decrease resistance to disease. By merely reducing such factors, the susceptibility to disease is decreased and the rate of healing increased.

A few studies have raised the possibility that the pain-reducing effect of placebos may have biochemical causes. It has been found that endorphins, which are chemicals similar to opium-derived narcotics, occur naturally in the brain. Because endorphins can attach themselves to the same brain receptor sites as morphine, it has been suggested that they are the brain's own painkillers. It is also possible that other biochemical processes and neural pathways may be activated by psychological mechanisms. But scientific studies in these areas have been inconclusive, and inferences made from them have been mostly speculative and subject to controversy.

Many aspects of the placebo effect, real as it is in many circumstances, remain unexplained. Certainly, the mechanisms underlying it--and there may be many--are often not obvious and deserve further scientific inquiries.

Some will say that it does not matter how placebos work as long as they do. But should physicians prescribe placebos to provide relief to patients? This is a dilemma. If the patients are told that they are receiving sugar pills or sham treatment, the placebo effect will be lost. However, if the patients are told that the placebo is a pharmacologically active medicine, the physicians are using deception and this is not ethical. Also, for illnesses that are helped by placebos, physicians usually have available therapies, including safe specific medications without significant side effects. These are used when the physician deems it proper, and no deception needs to be involved.

Sometimes medications without proven benefits are used; or proven medications are used inappropriately (e.g., antibiotics prescribed for viral infections). It is a fact that many medications used by physicians have not been subjected to double-blind clinical trials and therefore have uncertain degrees of efficacy. In these various cases, the benefits derived often may come from just the placebo effect. But these drugs are regulated and held to high standards of purity so their quality and safety is assured.

The most powerful placebo-type benefit a physician can offer a patient is the healing environment generated by the physical examination, the projection of confidence and authority, and the reassurances and explanations. Unfortunately, in these days of fast paced medical services, many patients perceive that they are not receiving enough medical attention from their physicians. Other patients are looking for less costly help, or want to avoid taking so-called "un-natural" pharmacological agents. These are probably the main reasons why so many people embrace strange and unproven therapies and herbal remedies commonly offered by practitioners of various types of "alternative medicine". They are unaware that they are often merely subjecting themselves to placebo effects. For example, homeopathy and acupuncture tend to relieve just those symptoms--such as pain, nausea, cough, and short term depression--that have been shown to be relieved in controlled placebo studies and apparently to a similar limited degree. Regrettably, providers of such therapies never offer the kind of patient information and data that can be used for scientific studies or evaluations. So at the moment there is little or no objective evidence that these or other alternative therapies offer any additional relief, beyond that provided by the placebo effect.

But even so, is not this worthwhile? It depends on the situation and the implementation of the therapy. Sometimes the alternative approach is more invasive than the scientific one. For example, the now notorious 1997 NIH consensus statement on acupuncture (see *Rational Inquiry*, vol. 3, Issue 1) declared that there is evidence of acupuncture efficacy for postoperative dental pain. But why would anybody subject themselves to the discomfort of extensive needle insertion, with a most uncertain outcome, when administration of minor analgesics is as safe or safer and highly effective?

The limitations of the placebo effect--whether produced by sugar pills, useless herbs, magnetic fields, or by other means--must be recognized. To deprive oneself or one's dependents of scientifically based medical treatments must be totally rejected. Safety also is an important issue. A physician may not have certain specific tools available to relieve troublesome symptoms, and may use a placebo-type treatment to try to help or comfort. But this is done without jeopardizing the patient's health. This should be the goal for all health care workers, whatever they call themselves.

Further reading.

The Powerful Placebo by A. K. Shapiro and E. Shapiro. Johns Hopkins University Press, Baltimore, 1997.

The Placebo Effect, edited by A. Harrington. Harvard University Press, Cambridge, 1997.

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