

# A Systematic Review on Placebo Effect

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## 1. Introduction

Have you ever been to the doctor and felt better a few days later even though you have not taken the prescriptions regularly??

This is the placebo effect in action. The trip to the doctor is thought of as a placebo here. As such, the white-coated practitioner has become the conditioned stimulus and feeling better the conditioned response(2).

### Definition and origin

Placebo is a Latin name which means "I shall please".

A placebo is a medically ineffective treatment for a disease or other medical condition intended to deceive the recipient into thinking of it as a real medication. Patients given a placebo treatment will have a perceived or actual improvement in a medical condition, a phenomenon commonly called the placebo effect or placebo response.

Placebo therefore can be thought of as a dummy treatment. It depends solely on the thoughts, beliefs and ideas that one has of the treatment plan he is undergoing.

Placebos are typically inactive substances which are physically indistinguishable from active medications, though active placebos (those with side effects similar to the drug under investigation but without the purported healing effects) are occasionally used.(2)

Placebos origin has no scientific back up to it. Studies done later show no clinically important effects, this led to placebos being infamous (6).

## 2. History

Due to poor research and little knowledge in the past Physicians and doctors in the earlier days used very little medication they went along with sugar pill or brine injections so as to comfort and satisfy a typical patients expectation of visiting a doctor, hence the Latin name placebo translating into I shall please, indicating that the patient would like a prescription. The patients in the past had to travel a great distance to seek medical help , a lot of money and time was spent and the doctors would therefore comply with them.

### This was the beginning of the placebo.

This word is in use since and, defined by the shorter oxford dictionary as something to please than to benefit the patient(10).

Placebos have been used for centuries in the form of 'bread pills' in order to make patients feel better, but it was not until 1955 that an attempt was made by Henry Beecher to quantify the placebo, its uses and effects in many different therapeutic dimensions. (3)

### So what exactly is a placebo?

Placebos carry a mystery to them and are difficult to define satisfactorily (12). A typical placebo might be a pill containing only sugar or bread or an injection containing only salt and water, and a placebo "sham" operation was one in which the patient was cut open and then sewn right back up. The fact that these treatment options work is still strange to many scientists and doctors around the world. The placebo is thought to be merely "inert," nothing at all. Whatever effects are produced by placebo interventions are "non-specific."(1)

Although the "inert" placebo (such as a sugar pill or saline injection) is a tool for scientific understanding of the placebo effect, there is no need for the use of a placebo intervention to elicit it. The placebo effect may accompany and enhance the effectiveness of medical interventions with demonstrated specific treatment efficacy. Moreover, the communicative interaction of practitioners with patients, both verbal and nonverbal, may produce placebo effects even without the use of discrete treatments.(1). Therefore placebos maybe thought of as a psychological thinking that brings about positive thinking.

All of these treatment plans have no medical effect what so ever but what it does have is a strong psychological effect on the patient.

### How does it work??

One suggestion offered is that the placebo effect from a highly active process in the brain mediated by psychological mechanisms (9) ,a belief or expectancy of a theory or indeed to a 'subjective feeling' of improvement(3). However it is currently being used with high positive results.

" the more you believe you are going to benefit from a treatment, the more likely you'll experience a benefit."(3)

Many studies suggest that, for certain individuals, an encounter with a doctor or other healer is enough treatment to initiate a recovery. The doctor may write a prescription, but the patient recovers even without filling it. Or the patient will feel better after undergoing a series of diagnostic tests.it is important here to notify the patient of the function of the treatment.

This suggests that the placebo acts upon a patient through his mind. It acts through the widely spread belief that medicines and surgeries help people get better. The fact that medicines and surgeries work positively is conditioned into our brains right from the first trip to the doctor though we may hardly remember.

One explanation for placebo effects is that the hopefulness that the patient feels while being treated translates into a physiological surge of specific hormones and other biochemicals in the body. These then go on to trigger therapeutic immune responses. One class of hormones implicated so far is the endorphins. They carry messages from the nervous system through the bloodstream to the endocrine and immune systems where they induce the production and release of other biochemicals that contribute to healing. Nevertheless, despite impressive progress in understanding the fascinating interactions of mind and body in connection with the placebo effect, the clinical significance of findings from placebo mechanism experiments remains open to question. (1)

So in short placebo activates the anti-depressants and other hormones that make the body feel happy translating its positive effect on the immune system thus making the patient feel better.

However, the two most influential components are undoubtedly expectancy and classical conditioning. (2,13) So it all comes down to the fact that positivity and optimism are very important factors when it comes to keeping the body healthy.

Factors influencing the strength of a placebo

The medical practitioner plays an important role in both expectation and conditioning; by conveying confidence in a treatment's efficacy, a doctor is more likely to facilitate a strong placebo effect (ibid). (2)

It is strange to note that the strength of a placebo works on factors like size, quantity, complexity, economical value etc.

Research shows that a bigger pill works better than a smaller one, two pills work better than one. The more often the pills are prescribed the better you feel. Injections and surgeries work better than pills. Coloured pills work better than white ones. Pills that are expensive work better than pills that are less expensive.

Also a very important point is to let the patient know what it is that the placebo will do without actually telling it is a placebo.

Uncertainty in the use of placebo

Placebos have not always shown a consistent result. Though placebos do not have any negative side effects its use has been continuously doubted and critiqued in the past. Individuals are not consistent in their placebo responses, and a placebo-responder personality has not been identified. (4)

### Placebo in the present

Beecher's Considered Seminal Work. Beecher's own interests in a placebo response came from his experiences as a field doctor during the War years, where analgesics were often in short supply. As analgesics ran out in the field hospitals, a placebo injection of saline solution was often given as a dummy treatment. Remarkable pain relief was noted from these patients. Similar results were being reported in medical literature, to pills and powders alike. (3)

This event in the past has led to the familiarisation and understanding of the placebo effect and accepting it even without clear scientific evidence.

Once accepted as a real phenomenon it has been used extensively to test new drugs. Placebos help in finding out if a new drug is effective enough to commercialise.

In the early 1950s, researchers began using placebos as controls in most clinical studies. Once placebo controlled drug trials became a legal requirement in the licensing of new drugs, a plethora of research ensued into objective and subjective factors in placebo controlled treatment regimens. (3). They would compare the effects of a new pill, for example, with those of a placebo pill that looked exactly the same but had no known active ingredients. Placebos established a baseline, showing, for example, the effects of pill-taking per se. If the placebo pill worked as well as the new pill, then the active ingredients in the new pill weren't all that active. The experiments typically were carried out "double blind": neither the subjects who were participating in the studies nor the researchers who were conducting them knew who was getting which pill.

### What's a nocebo

A nocebo is basically the opposite of a placebo. nocebo (Latin for "I shall harm") (7) is an inert substance or form of therapy that creates harmful effects in a patient. The nocebo effect is the adverse reaction experienced by a patient who receives such a therapy. The opposite of the placebo phenomenon, namely nocebo phenomena, have only recently received wider attention from basic scientists and clinicians (5).

The term "nocebo" was originally coined to give a name to the negative equivalent of placebo phenomena and distinguish between desirable and undesirable effects of placebos (sham medications or other sham interventions, for instance simulated surgery). (5)

Expectations that a treatment will be poorly tolerated, whether based on experience or induced by information from the media or trusted third parties, may bring about nocebo effects. (5) where subject undergoes clinical worsening and expectations of increased pain is induced (8).

### Future of placebos

Although the placebo concept is fraught with confusion, the terminology of "the placebo effect" and "the placebo response" is entrenched in the language of biomedicine and unlikely to be abandoned in the near future (1). Wider

recognition of placebo is imperative as stated by Nitzam et al in his article (11)

As to the future of research into the placebo itself, perhaps further research especially in the field of Evan's proposal that the placebo response is in some way linked to the immune system and to the release of endorphins, a similar reaction will take place and a common linkage be found between all the varying descriptions of placebo and common ground can be found in research. (3)

After analysing 38 published clinical trials involving more than 3000 depressed patients, he found that a whopping 75 per cent of the antidepressant effect was also produced by placebos – sugar pills with no active ingredients.

The placebo is ironically the wonder drug it has a promising future (14,15) in the field of pharmacology since it has minimal side effects and positive effect on health also it is shown to have an overall positive influence on the immune system by keeping body depressants in check

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