**Placebo effect**

**Summary**

- A placebo is any medical treatment that is inert, such as a sugar pill.
- Around one third of people who take placebos (believing them to be medication) will experience an end to their symptoms.
- Belief in a treatment may be enough to change the course of a person's physical illness.

**What is the placebo effect?**

Placebo is Latin for 'I will please', and refers to any medical treatment that is inert (has no active properties). A placebo doesn't have to be a pill. It can be any inert or 'dummy' treatment.

The placebo effect is the positive effect on a person's health experienced after taking a placebo. It is triggered by the person's belief in the benefit of the treatment and their expectation of feeling better, rather than the specific form the placebo takes.

Placebos are often used in clinical trials for new treatments.

'Impure placebos' are medications that have an active pharmacological effect, but have no demonstrated effectiveness for the condition being treated.

**How placebos work**

The exact physiological mechanisms of the placebo effect remain mysterious. Some of the theories that attempt to explain it include:

- **self-limiting disorders** - many conditions, such as the common cold, are self-limiting. They will resolve by themselves anyway, with or without placebos or drugs, and the end of symptoms is merely coincidence
- **remission** - the symptoms of some disorders, such as multiple sclerosis and lupus, may wax and wane. A remission during a course of placebos may be coincidence, and not due to the placebos at all
- **a change in behaviour** - the placebo may increase a person's motivation to take better care of themselves. Improved diet, regular exercise or rest may be responsible for the easing of their symptoms
- **altered perception** - the person's interpretation of their symptoms may change with the expectation of feeling better. For example, a sharp pain may be reinterpreted as an uncomfortable tingling
- **reduced anxiety** - taking the placebo and expecting to feel better may soothe the autonomic nervous system and reduce the levels of stress chemicals, such as adrenaline
- **brain chemicals** - placebos may trigger the release of the body's own natural pain relievers, the brain chemicals (neurotransmitters) known as endorphins
- **altered brain state** - research indicates that the brain responds to an imagined scene in much the same way as it responds to an actual visualised scene. A placebo may help the brain to remember a time before the onset of symptoms, and then bring about physiological change. This theory is called 'remembered wellness'.

**Influencing factors for the placebo effect**

Some of the factors that influence the placebo effect include:

- **the characteristics of the placebo** - if the pill looks genuine, the person taking it is more likely to believe that it contains medicine. Research shows that larger sized pills suggest a stronger dose than smaller pills, and taking two pills appears more potent than swallowing just one. Generally, injections have a more powerful effect than pills

- **the person's attitude** - if the person expects the treatment to work, the chances of a placebo effect are higher, but placebos can still work even if the person is sceptical of success. The power of suggestion is at work here.

- **doctor/patient relationship** - if the person trusts their health care practitioner, they are more likely to believe that the placebo will work.

### Placebos and clinical trials

The placebo has long been used in, and is considered essential for, research (clinical) trials to objectively test the effectiveness of a new health care treatment, such as a medication. Ethical considerations require that participants in clinical trials be told that they may be given a 'dummy' treatment, to avoid deception.

Usually, one group of people takes the medication while another group (the 'control group') takes the placebo. The placebo may be a sugar pill. In some cases, none of the participants know whether they are taking the active or inactive substance. Sometimes, not even the researchers know (this is called a double blind test).

Comparing the results from both groups should indicate the effects of the medication. However, people sometimes get better when they are taking a placebo. This phenomenon is known as 'the placebo effect'.

Estimates vary, but around one third of people taking placebos for health complaints (including pain, headache and seasickness) will experience relief from symptoms. There are various theories that attempt to explain this phenomenon. More evidence is emerging on the underlying mechanisms of the effect.

### The placebo effect does not imply an 'imaginary' illness

If a person's symptoms are relieved by taking an inert substance or undergoing a dummy procedure, it may seem logical to assume that their illness must have been imaginary. This is not the case.

Medical research has shown that psychological states play an important role in the development of disease. For example, stress is known to increase blood pressure, and chronic hypertension is a risk factor for heart disease. So, just as the mind can contribute to a physical disorder, it can also contribute to its cure.

### The argument against placebos

Arguments against the use of placebos, include:

- Placebos have the power to cause unwanted side effects. Nausea, drowsiness and allergic reactions, such as skin rashes, have been reported as negative placebo effects – also known as nocebo effects (see below).
- Critics of placebos maintain that deception is wrong, regardless of whether the deceived patient experiences an end to their symptoms.

### The 'nocebo' effect

The nocebo effect is a negative effect (such as pain or nausea) brought on by the expectation of experiencing that negative effect after taking a placebo.

This expectation of negative effects from placebo may be triggered during the informed consent process, when the patient is briefed on which adverse effects they might experience before starting treatment.

### Open-label placebos

In order to prevent the use of deception or concealment in prescribing placebos, in some instance open-label placebos are also used – this means that people are openly and knowingly prescribed placebo medication for a condition.

Despite knowing that the medication they are taking is inert, it is found that the placebo effect still occurs for people using open-label placebos. It is thought that this could be due to:

- the therapeutic nature of feeling hopeful about your health condition as a result of participating in a study
• expectations of relief
• the physical effect of pill-taking (such as opening a pill bottle, or swallowing)
• natural fluctuations in pain levels.

Where to get help

• Your doctor

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