Meta-placebo: Do doctors have to lie about giving a fake treatment?

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Abstract

Fake treatments work. That is a well established medical fact. This is why the golden standard of evidence-based medicine requires double-blind testing. Both real and fake (also known as placebo) treatments are administered in order to be able to distinguish the effects of the treatment-under-test from the placebo effect.

Given the medically proven fact that fake treatments work, doctors could include fake treatments in their medical repertoire. However, this poses an ethical dilemma. On the one hand the doctor does not want to lie to his patient. On the other hand, the effect of the fake treatment would diminish if the patient knows it is fake. For this reason, fake treatments are typically left to practitioners of so-called alternative medicine who are often not even aware of the ethical dilemma.

The central hypothesis of this article is that the doctor does not have to lie, and that truthfully administering fake treatments would not render these ineffective. A proper term for this type of treatment "meta-placebo". The placebo effect is based on the healing belief of getting administered a real treatment. The meta-placebo effect is based on the healing belief that even fake/placebo treatments have positive effects. That is, if both the doctor and the patient believe in the healing powers of the fake treatment, it does not matter that both know the treatment is fake.

If the meta-placebo effect exists, it would solve several of the doctor's dilemma's. First of all, he would not have to lie to the patient when applying a fake treatment. Secondly, by having fake treatments in his medical repertoire, the doctor could keep patients in the regular medical circuit and keep monitoring the patient's syndrome. Thirdly, the doctor could keep the patient away from the medical and financial risks associated with alternative medicine.

Unlike the well-established placebo effect, the meta-placebo effect is still a medical hypothesis. The hypothesis shall have to be tested experimentally, before "meta-placebo" treatments can become evidence-based medicine. Such validation involves several medical philosophical complications. How can the hypothesis be tested following the golden double-blind standard? What syndrome would be suited for a meta-placebo-experiment? What would a treatment in a meta-placebo experiment look like? How can meta-placebo be distinguish from placebo? What ethical aspects do meta-placebo's have? This article discusses these questions in detail.

1. Introduction

The placebo effect is a fascinating aspect of modern medicine. Even a fake treatment has a positive effect on the patient. It is a well established medical fact that there are healing powers in the belief of receiving a real treatment, even if that treatment happens to be fake. It may be the case that most, if not all of the effectiveness of "alternative medicine" is based on this effect. It is because of the placebo effect that the golden standard of medicine requires double-blind testing with both a real treatment and a fake one, the placebo. The essence of double-blind testing is that neither the doctor nor the patient knows whether the real treatment or the placebo is applied, and both work under the assumption and belief that the real treatment is administered. This way, the placebo effect can be subtracted from the effect of the real treatment.

Given the well-established positive effect of fake treatments, why are fake treatments are not part of the standard medical repertoire? And why should fake treatments be left to practitioners of alternative medicine, with all medical and financial risks involved for the patient? Fake treatments do not pose a conflict with the Hippocratic oath, as in many cases a fake treatment may be in the patient's best interest, including keeping the patient away from the dangers of alternative medicine. The main complication with fake treatments is an ethical and perhaps moral dilemma. On the one hand, the doctor does not want to lie to the patient. After all, lying is morally wrong and the doctor typically wants to have a relationship of trust with the patient. On the other hand, if doctor does not lie, the patient will know that the treatment is fake, which will undermine the patient's belief in the treatment, which in effect would undermine the effectiveness of the treatment itself. And that is not in the patient's best interest.

The central hypothesis of this article is that the doctor does not have to lie. Imagine the following doctor-patient dialog.

Doctor: "Given my diagnosis of your syndrome, I am going to prescribe you a fake treatment."

Patient: "Excuse me?"

Doctor: "Given your symptoms, I have come to the conclusion that you are best helped by following the fake treatment that I am going to prescribe to you."

Patient: "Are you kidding me?"

Doctor: "No, I am absolutely serious. Have you ever heard of the placebo effect?"

Patient: "Eh …, no. Please explain."

Doctor: "The placebo effect is based on the healing belief in a treatment. It is a well established medical fact that even fake treatments yield positive effects. In case of your syndrome, none of the existing medicines do better than a placebo. This is why I think it is in your best interest to give you a fake treatment, that is a so-called placebo treatment."

Patient: "So the treatment is fake. Why would that be in my best interest?"

Doctor: "First of all, there is the healing power of the placebo effect which I just explained. Trust me, the placebo effect is real. Secondly, I want to keep you in the medical circuit so that I can keep an eye on you."

Patient: "Well, OK. What treatment do you have in mind?"

Doctor: "My favourite placebo treatment is the 'green pill'. It has some herbs inside, that do nothing, but at least the pill tastes well. Moreover, its grass-green colour makes it look very natural, which is a positive thing. It is also not too expensive. You can get it from your pharmacist. Here is you recipe. Please take the pill once a day, just before dinner."

Patient: "But couldn't I just take a green Tictac? After all, you just explained that the treatment is not about what is inside the pill."

Doctor: "I am sorry, but it does not work that way. This treatment is the most effective if it is prescribed by a professional medical practitioner in a white coat, that is me, and when it is obtained from a professional medical outlet, that is your pharmacist. Trust me, I can show you the medical literature on this."

Patient: "OK, I believe you. Thank you for taking the time to explain."

Doctor: "You are welcome. I'll see you next month, so we can examine together how well the treatment has worked."

This dialog may sound absurd, like something taken from a Monty Python sketch. But it could be serious. If the meta-placebo effect could be medically established, then the doctor could apply a fake treatment including all its positive effects and without any ethical or moral dilemmas.

The rest of this article is about the question how the meta-placebo effect could be medically established. The next section presents a the formal definition of the central hypothesis of this article, and explain why "meta-placebo" would be a proper term. Further sections work out the following aspects of "meta-placebo" treatments.

- How to measure the meta-placebo effect?
- What would be the treatments in a meta-placebo experiment?
- How can meta-placebo be distinguished from placebo?
- What syndromes would be most suited for a meta-placebo-experiment?
- What ethical aspects do meta-placebo's have?

This article concludes that although the meta-placebo effect may be hard to establish, a scientific validation of this "openly-fake" effect has real therapeutical value.

2. Meta-placebo hypothesis: the doctor does not have to lie about fake treatments

The central hypothesis of this article is that a doctor can give a patient a fake treatment and does not have to lie about it. Where the placebo-effect is based on the healing belief in "real" medicine, this "meta-placebo" is based on the belief that placebo's have a healing effect.

The prefix "meta" is used to indicate a concept which is an abstraction from another concept. For example, meta-data are data about data (who has produced them, when, what format the data are in and so on). Similarly, meta-memory in psychology means an individual's knowledge about whether or not they would remember something if they concentrated on recalling it. Furthermore, meta-emotion in psychology means an individual's emotion about his/her own basic emotion, or somebody else's basic emotion (Source: *Wikipedia*). The hypothesis is about a placebo about placebos. Hence "meta-placebo" would be an appropriate term.

Figure 1 illustrates some thoughts about the meta-placebo effect. The vertical scale is the effectiveness of a given treatment, which is detailed later in this article. The effectiveness of a real treatment (first bar) should be better than a placebo treatment (second bar). If their effectiveness is equal, then the real treatment is considered ineffective. If the effectiveness of a real treatment is worse than the placebo, the treatment should better not be applied. As illustrated, in many cases the effectiveness of a placebo is better than doing nothing (fourth bar), which is the baseline of the illustration.
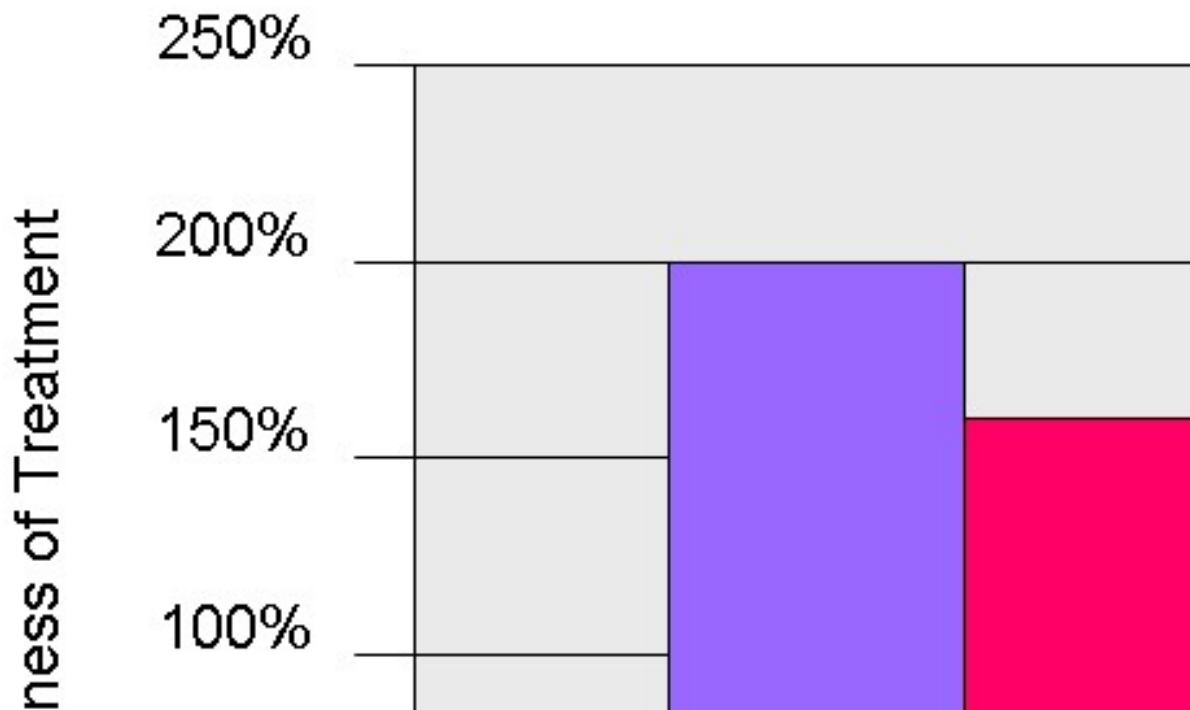

Figure 1: Comparing meta-placebo treatments with other treatments (for illustration only).

The question is how effective the meta-placebo treatment (third bar) is, compared to the other kinds of treatments. One possibility is that a meta-placebo is just as ineffective as doing nothing. Once the secret of the fake treatment has been told, the patient loses his belief and the effect is gone. In that case the hypothesis would be disproved. According to Karl Popper, the famous Austrian philosopher, a hypothesis should have falsifiability, and ours has. A second possibility is that meta-placebos are as effective as placebos themselves. After all, both are about the belief in medical treatments. This outcome would imply that not lying to the patient has no negative side effect. A third possibility is an effectiveness that lies between doing nothing and a "real" placebo. This would mean that the effectiveness of believing in real medicine is stronger than the effectiveness of believing in the placebo effect. A fourth possibility is that a meta-placebo is more effective than a placebo. This outcome is unlikely, as there are no supporting arguments in this direction. A fifth possibility is that a meta-placebo is worse than doing nothing, an outcome that is unlikely as well.

3. How to measure the meta-placebo effect?
As mentioned before, "double blind" is the golden standard in medical science. This standard is based on neither the doctor nor the patient knowing whether a real or fake treatment is administered. However, the meta-placebo effect is about both doctor and patient knowing that the treatment is fake. This makes it particularly difficult to test the meta-placebo hypothesis in a double-blind test.

A possibility is to replace the treating doctor by an actor in a white coat. This prevents that the doctor who analyses the effectiveness knows which treatment the patient has received. The separation between the treating and analysing roles are well known in double-blind experiments. An example is fake or sham surgery, that is used as a placebo for a real surgical treatment. Of course, not actors but real surgeons would then be used.

This approach does not work for the patient, as the meta-placebo effect relies on the patient knowing that he receives an "proven effective fake treatment". The best that can be done here is finding means to keep the patient from telling others about which treatment he or she got, in particular to the doctor that analyses the effectiveness of the treatments. However, it is unclear how this secrecy can be guaranteed. Especially since the effort of keeping a secret can affect a patient and hence influence the experiment. One way out may be using locked-in patients, who cannot spill secrets by definition. However, both ethical and practical considerations would exclude involving locked-in patients. Probably, the most effective and least intrusive solution is to use "normal" patients, ask them for secrecy and minimize the contact between patient and analysing doctor.

4. What would be the treatments in a meta-placebo experiment?
Typical double-blind experiments involve two patient groups, namely those patients who get the real treatment and those who receive the placebo. Probably three patient groups would be required in an experiment on the meta-placebo hypothesis, one test group and two control groups.
1. "Placebo group": the doctor in white coat tells the patient that "this green pill" has the scientifically proven effect of reducing the patient's symptoms. The doctor instructs the patient to take the pill once a day before dinner.
2. "Meta-placebo group": the doctor in white coat tells that "this green pill" is fake, explains what a placebo is and explains about its healing power. Then again, the doctor instructs the patient to take the pill once a day before dinner, and trust in the healing power of the placebo effect. See for example the dialog in the introduction.
3. "Do-nothing group": the doctor in white coat tells the patient that he is in the control group and hence receives no treatment.

A more intrusive experiment could involve fake surgery instead of medicinal treatment. Both the first and second patient group would be operated on with real incisions, but only the second group would get the explanation from the doctor the treatment is fake. Even if a fake medicine is used, a good experiment may require that the fake medicine has side effect, like nausea. Both placebo- and meta-placebo patients would be told about the side effects of the medicine, but only the second group would learn that the side effects are the only effect of the medicine.

The reason for having three patient groups is to validate the experiment. If a particular experiment yields little difference between the "placebo group" and the "do-nothing group", then any statements about the meta-placebo would be meaningless. On the other hand, if a particular experiment yields a big difference, then an accurate judgement of the effectiveness of the meta-placebo treatment can be made.

A question is what to do with patients from the "meta-placebo group", who refuse the meta-placebo treatment. A well known problem in market research is non-response, as many people don't like to answer marketing questions. Therefore, marketers have to make significant corrections for non-response. Similarly, a patient may decide to drop out when hearing that he/she is not getting a real treatment. This may not be a problem in a meta-placebo experiment, as the relevant test group has the patients who accept the meta-placebo treatment. In order to keep the experiment statistically significant, it may be required to make the initial meta-placebo group larger to compensate for possible drop-outs.

5. How can meta-placebo be distinguished from placebo?
Since both placebo and meta-placebo rely on belief, it may be hard to distinguish the two. Like in psychological experiments, the true purpose of the experiment can only be disclosed to the patients after the experiment. So paradoxically, even though meta-placebo is about the doctor being honest to his patient, a good experimental setup would require secrecy and even dishonesty. For example, the actor in white coat should not disclose that he is an actor, as also the meta-placebo effect is based on believing the doctor. On the other hand, the actor/doctor should explain in detail about the treatment being fake, as illustrated by the doctor-patient dialog in the introduction of this article. This way the treatment of meta-placebo group is distinguished with that of the placebo group, who should believe the treatment is real.

6. What syndromes would be most suited for a meta-placebo-experiment?
Unlike real medicine, meta-placebo is not specific to any symptom or syndrome. This means that in order to test the meta-placebo hypothesis, one or more symptoms and syndromes should be selected

for the experiment. It might be the case that meta-placebos are more effective for one syndrome than another. So even if the meta-placebo effect would be established for a particular syndrome, its effectiveness could be very different for another syndrome.

An important criterion in selecting a syndrome for the experiment is how well the effectiveness of the treatment can be measured. Objectivity would best be served with symptoms that can be objectively measured, like heart rate and blood pressure. Self reporting and subjective observation could yield valuable information, but only if the right provisions are made not to spoil the experiment.

Ethically, a meta-placebo experiment should only be carried out on syndromes for which there exist no effective real treatments. One possibility would be syndromes for which there are no known effective cures. Examples are rheum and multiple sclerosis. A boundary condition may be that no symptom-suppressing medicines are used in order to keep the experiment clean. A second possibility would be "nocebo" syndromes. A nocebo is something that makes people feel ill, because they believe it makes them ill. A well-known example is sensitivity to telecommunication radiation, which can make some persons feel ill, even when the antenna is fake and not powered. As such, nocebo is the negative counterpart of placebo. On the one hand, it would make sense to treat a fake syndrome with a fake treatment. On the other hand, mixing nocebo, placebo and meta-placebo would add complexity to the experiment. Moreover, a nocebo patient is distrustful by definition, and may not be willing to accept an explicit fake treatment. A third possibility is to use perfectly healthy test subjects. A complication is that there is no associated syndrome to cure.

Considering the alternatives, the effectiveness of meta-placebos is probably best tested on chronically ill patients.

7. What ethical aspects do meta-placebo's have?
A meta-placebo treatment is without any pretence, which is in contrast to placebo, homeopathic and other fake treatments. The patient hears that he gets a fake treatment, because of the scientific evidence of their effectiveness. This is completely true. The patient can make a fully-informed decision whether he does or does not accept the meta-placebo treatment. So, would the existence of the meta-placebo effect be scientifically established, it can most likely be medically applied without any ethical objections.

Paradoxically, the scientific establishment of the meta-placebo effect has several ethical considerations. A correctly performed experiment will require lying to the patient. Also, none of the involved patient groups will get any real treatment. A medicinal fake treatment will be less intrusive than fake surgery, but it will be intrusive in the patient's life nonetheless, especially if the chosen fake medicine has physical side effects. This means that the experiment should be designed very carefully in order to be ethically justifiable.

8. Conclusion
This article has argued that there is medical value in scientifically validating the meta-placebo hypothesis. However, it is hard to design an experimental set-up that is scientifically sound. First of all it is not clear how the meta-placebo hypothesis can be tested in a double-blind experiment. The "test" and "control" treatments will have to be carefully designed, in order to distinguish the meta-placebo effect from the already established placebo effect. Moreover, it is necessary to find a reasoning to select a syndrome to test meta-placebos on. The good news is that if the effectiveness of the meta-placebo effect can be established, it can be applied without ethical objection. The reader's assistance is requested in testing the meta-placebo effect.