

Jan Łazowski

A Placebo Effect or a Relational Effect?

Introduction

A placebo is an agent without chemical, physical or biological medicinal properties, yet when it is applied as medicine, it often provides a significant, unfeigned improvement of health, known as the placebo effect. The improvement usually takes place in the course of a visit to the doctor's office. Such conclusions were drawn from a significant number of studies and discussions throughout the last few decades (1, 9, 12 and 25).

The term „placebo” has been accompanied by negative opinions from the moment of its creation. It was believed to be a result of suggestions and was considered a valueless feeling, only feigning improvement of health. In medicinal practice, treatment with the use of a placebo is sometimes applied, more or less secretly and more or less consciously (11). Treatment with a placebo is evaluated as unethical due to the fact that it is not possible to administer an agent which is, by definition, inactive and claim that it has healing properties. So far, no definition of placebo has been created; there have been numerous attempts determined as unsuccessful and frequently contradictory.

The health improvement mechanism is being investigated, but there are still questions

without answers. It is possible to encounter opinions that the placebo effect is a result of suggestions, yet health improvement exceeds the impact assigned to suggestions. It has been shown that the amount of health improvement is influenced by the level of the doctor's conviction about the efficiency of the prescribed agent and the expectance of improvement on the part of the patient. This last factor is often ascribed great significance (2, 7 and 14). The possibility of creation of the placebo effect via learning was confirmed upon the principle of classic conditioning. In line with this explanation, the placebo effect would be a reaction conditioned by previous effective administration of medicines (2). However, this hypothesis does not clarify the commonness of occurrence of the placebo effect. Improvement of health was also noticed as a result of medical advice without application of medicines and even as a result of diagnostic examination (cf. 9). Neuro-physiological studies reveal biochemical and electro-physiological processes in the brain related to the use of a placebo. These processes are not only specific with respect to the placebo, but relevant for removal of disease disorders. The use of a placebo in pain treatment results in the creation of endorphins in the brain; in the

treatment of Parkinson's disease, the striatum centres are stimulated, and with respect to depression, metabolic changes in the frontal and parietal lobes of the brain are induced (11).

Premises and Hypotheses

I would like to present a concept which constitutes yet another attempt at clarifying the mechanism of health improvement which takes place after application of an inactive agent known as a placebo.

I rely on the following premises:

First of all: we are dealing with true, measurable health improvement.

Secondly: in the mechanism of the placebo effect, the most important aspect is the share of psychological functions.

Thirdly: it is assumed that the placebo effect has features of a reaction to specific stimuli.

In the presented divagations, I will try to justify two hypotheses. The first one is that the placebo effect is an evolutionary, innate adjustment. The second hypothesis is that the placebo effect is caused by stimuli from a therapeutic relation, whereas the placebo acts only as one of the components of this relation.

Innate Nature of the Placebo Effect

Nicholas Humphrey (14) contemplates the placebo effect as an innate reaction to provide relief in a health disorder. He recalls the works of G. Zajcek, H. Brody and A. and E. Shapiro, who call the placebo effect a natural and genetically transmitted function of an organism. N. Humphrey determines the placebo as one of the functions of the health management system. This system is meant to manage defensive and protection processes.

Genetic conditioning of a placebo was

ascertained experimentally in studies on social anxiety syndrome (SAD) for the first and, so far, only time. The studies were conducted under the supervision of T. Furmark (10). They display the dependence of the placebo effect on the presence of a specific version of a gene responsible for production of serotonin and activity of the amygdaloid nucleus. The studies refer to a small area of occurrence of the placebo effect and do not allow for generalisations.

It is assumed that the commonness of occurrence of a certain psychological or biological phenomenon is an argument in favour of its innate character (6). It has also been ascertained that the placebo effect occurs commonly and that it is stronger in children than in adults (20); what is more, it is independent of age, sex, race, religion and beliefs (21). The commonness of occurrence of the placebo effect is well-known, yet it is worthwhile considering the possibility of selecting the placebo effect in the course of evolution in relation to therapeutic relation. I am aware of the fact that such divagations are only presumptions and hypotheses.

Psychosomatic Attachment Relations

A human child cannot survive without care during the course of the first several years of life. Expectance of care and the seeking of it by a small child (by crying, shouting and other signs), as well as a strong inclination to maternal care on the part of parents, constitute genetic adaptation in humans, which is described in the attachment theory (4, 8). Similarly, more primitive caring attitudes occur in many animal species that evolutionary precede humans, which may testify to their wider rooting in the genetic structure.

The authors of one of the most popular psychology textbooks, „Psychology and Life”, in the issue from 1977 (29) in the introductory chapter, present several studies proving the impact of feelings on the development of children. They show that an increase in weight and height may be accelerated or slowed down depending on the emotional aspects of the behaviour of caretakers. The absence of positive feelings and verbal contact with caretakers may lead to extremely grave health disorders and even the death of small children in spite of proper nutrition and good physical condition. It was proved that emotional closeness and verbal communication in maternal care are almost as equally important as nutrition, at least during the first three years of life. Types of behaviour expecting care or even demanding care can be seen in infants and children. These types of behaviour are indispensable in childhood; they may last longer, persisting even into the period of maturity. Regressive behaviour is frequently present in adults in situations of various threats, as well as in the case of diseases. They can be observed in a doctor’s office (3, 16) and in other situations.

The meeting between a patient and a doctor, at least since Freud’s times, has been compared to the parent – child relation. The emotional atmosphere, in both cases, has very similar - if not the same - features and influences both the positive and negative result of relations. Care of a child and care of sick person are very similar. The hypothesis that perceives the similarity of the placebo effect in a therapeutic relation to the reactions of children’s organisms in a care relation seems justified.

The placebo effect, providing relief in

ailments, accelerating defensive and regeneration processes, may be an organism’s response to subjection to care; the same or similar to the one that is created in the child’s organism with respect to care activities. It can be assumed that the mechanisms observed in children continue to last in adults ... in secret.

The Placebo Effect as Evolutionary Adjustment

One can take a cautious guess at social situations where the placebo effect is preferred. Wounds and injuries sustained in fights and during hunting and diseases very frequently plagued the mammals living for millions of years in the jungles and savannahs of Africa, and later anthropoids and humans. There has probably not been a specimen that has not suffered from them.

The first selections of genes whose expression was related to care of the sick or injured, i.e. with therapeutic relations, could have occurred when a person taken care of would come back to health, whereas if such a person was left alone, he/ she would die. The opposite of care is lack of reaction to the suffering of an injured or a sick person, who would be left alone on a savannah, or whom people would treat as an obstacle, or who would be removed from sight. Such a situation had to end tragically. In the wars of ancient and primitive tribes that are known to us, several dozen per cent of populations would die; sometimes, the losses could reach up to 80%. God, in the Old Testament, orders Israel to kill all the people in conquered cities, even women and children. It can be imagined that for a person who was seriously injured or sick, finding a fellow man who would be willing to take care of him/ her meant the saving of a life. It can also be ima-

gined that finding a man, injured or sick, who would come back to health as a result of care, entailed the winning of a warrior, a husband, a slave or another valuable member of the community.

Persons and families with the genetic mutation motivating them to take care and causing a psycho-physiological reaction to care had greater chances of survival and reproduction than individuals who did not have such tendencies. In such conditions, the Darwinian idea of natural selection could take place. This was intensified by the fact of a greater chance for care on the part of close family members and relatives. Relatives have the same genes and tendencies; therefore, these genes have a greater possibility of distribution (19). Families that did not have the genetic tendencies to care and reaction of getting better would perish.

History of Medicine

The recorded history of medicine is a natural prolongation of descriptions of prehistoric dealings with the injured and sick. The commonness of care and omnipresence of a placebo are ascertained in it. For thousands of years, countless and various medicines were used: herbal mixtures, exposure to the sun, gases, cold and heat. It is not possible to list even some of the agents that were used. Seemingly active agents were applied, sometimes actually active and frequently harmful, or even very dangerous. They were not differentiated due to lack of knowledge. Today, scientific studies show that only a few of them could have had a therapeutic effect via chemical, physical or biological properties. A great majority, over 95% of them, are agents without such an effect (7, 28). Therefore, the

medicinal effects had to be obtained primarily via psychology in the form of improvement of health, which today is contemptuously called the placebo effect. It is necessary to emphasise that the personal contact of a therapist with a patient, i.e. the therapeutic relation, was the basis for all medicinal activities (7, 15). In all cultures and in all historical periods, improvement of health was significant enough for both doctors and medical schools to obtain a high standing and social position thanks to this.

Unconventional Medicine

Nowadays, we can observe the activity of healers, which is known as unconventional medicine. The methods of treatment applied in it rely, primarily, on the placebo effect. These methods were created in the past centuries and emerge nowadays with the use of electronic and computer techniques. It is necessary to emphasise that in unconventional treatment, the therapeutic relationship has always played the main role. On the other hand, many unconventional therapists do not use material medications or perceptible physical activities. Many, if not the majority of, traditional therapies, e.g. Chinese, Indian or Hindu, refer to metaphysical activities, referring more to ghosts than items. Homeopathy provides, in a therapeutic relation, „almost nothing”, materially packaged and provided with various information. Unconventional methods are popular around the world. Their popularity and efficiency is so significant that the WHO, after a long-term, detailed examination, has reached the conclusion that they cannot be combated, and it even recommended their introduction into the public health service, though only in developed countries (26).

Double Blind Test

When introducing every new medication to treatment, it became necessary to differentiate the characteristic impact of such medication (biochemical or biophysical) from the non-characteristic impact (psychological impact, i.e. the placebo effect). The necessity of differentiation is caused by the commonness and the strength of the placebo effect, which may distort the evaluation of efficiency of the new medication. This differentiation is performed with the use of a double blind test. Without this study, the medicine cannot be allowed for sale in pharmacies. In order for the test to be successful, it is necessary to keep information about the placebo secret (double blind test), which proves the significance of information for every therapy. The necessity of differentiation confirms the commonness and the power of the placebo effect. The double blind test is performed solely in the therapeutic relationship; most frequently in patients treated in hospitals.

The Placebo Effect as Conditional Reaction

Care relations between a mother and a small child offer great possibilities for conditioning the psycho-physiological reactions of the child to care activities. Care frequently consists in the removal of ailments (hunger, coldness, discomfort, etc.) by the same person. Repeated care activities create a conditional reaction in the form of the calming down of the child and – probably – an experience of improvement, probably even by the sole appearance of a caretaker, before the characteristic psycho-physiological effects of his/her activities begin to develop. A conditional reaction may persist in later years and even in

the age of maturity and old age and become revealed when similar situations to those from childhood emerge in the body and in the mind, i.e. when there is an ailment and when there is a person who wishes to help in the removal of the ailment. The involuntary mechanism of decrease of ailments may operate then, which mobilises the body to accept care, similarly as during childhood.

Interpersonal Relation

People live in communities, and this creates the necessity of keeping in touch; interpersonal relations are created, which belong to the fundamental facts of human existence. These relations are various. Their type is determined by the motives of creation of relations. They may be composed of any number of meetings. A classic relation is created by two partners, yet there may be more than one person on each side. It may also be a reaction consisting of a greater number of partners. The results of relations may be positive or negative, on a whole scale of possibilities, from zero to life-determining in a physical, psychological and social dimension, in every area of human existence. Relations are motivated processes, where interaction and exchange of feelings, information and activities take place. With the use of these, partners in a relation participate in the performance of a specific task, which was a motive for a meeting or resulted from the reaction. The relation takes place against deeply solidified convictions and weaker beliefs that, as a result of the relation, may be changed. It seems that motivations and interactions (emotional, information) and activities, even though they occur in various proportions, are present in every relation and exhaust its content. All interactions take place

simultaneously and are closely connected.

Therapeutic Relation

In the definitions of a placebo, it is usually assumed, even though most frequently indirectly, that the therapeutic relation is the place of the placebo process. I have not encountered beliefs assigning any weight to the therapeutic relation in the emergence of a placebo. I have also not encountered a placebo in situations which cannot be included in therapeutic relations.

The therapeutic relation encompasses all the phenomena described as accompanying a placebo, e.g. expectation, hope, positive feelings of the therapist, positive emotional atmosphere of therapy, medicinal suggestions and others. In the presented concept, I consider the placebo effect as a reaction caused by stimuli in the therapeutic relation.

The therapeutic relation requires at least two persons. One of them has to show motivation to offer help, whereas the other seeks help. These are characteristic partners, active and passive. A therapeutic relation may emerge in various conditions, not only in a hospital, but also in an out-patient clinic or during a walk, as described by N. Humphrey.

Feelings

What is perceived as feeling is probably a conscious expression of psychical and physiological conditions. Feelings can also be treated as a certain type of communication about the condition and psycho-physiological needs of people. In dynamic psychology, feelings are described as transfers and counter-transfers; they are believed to be an important element of psychotherapy and are related to physiological functions.

The therapist is guided by motivations and care and therapeutic feelings. The therapist provides the environment with information about the efficiency of his/ her therapy along with the willingness to provide help. The ability of correct diagnosis and treatment allows the therapist to act with significant certainty, revealed in the expression of and creation of a positive emotional atmosphere.

People look for treatment because they experience unpleasant ailments from various organs of their bodies; they are afraid for their health and sometimes even for their life. Information about the possibility of removing ailments instils them with hope and makes them go to see the doctor. An expectation of improvement is created, as well as the feeling of anxiety and curiosity related to an unknown doctor and an equally unknown medicinal procedure. These are the states that are strongly experienced emotionally and somatically.

An emotional interaction between a patient and a therapist relies on the mutual evoking of feelings, which takes place automatically and outside of awareness or on its threshold. The feelings of every partner may change via reception of the emotional expression, behaviour and information received from the other partner. These feelings are subject to conscious control, whereas exchange of information and behaviour are controlled to a significant degree.

Information

The interpersonal relation becomes therapeutic thanks to the presence of information determining therapeutic motivations and the tasks of its participants. Without such information, it is not possible to imagine a therapeutic relation. In this manner, the information

becomes integrally, by definition, contained in the therapeutic relation and determines its existence. Such information is most frequently expressed *expressis verbis*, yet it may also be provided in a non-verbal manner. A doctor's office and a hospital, by means of their appearance, purpose of existence and opinion, provide information that treatment takes place there. A pill and an injection, by their shape and the manner of application, suggest that they are used for treatment. The information influences medicinal results. This is testified to by the experience which forced the use of a double secret (hiding of information) in the double blind test.

Information has such a significant impact on the placebo effect that interpretation of certain experiences suggests assigning significance to it. I will refer to two of them (15, 16). In the treatment of Parkinson's disease, specific brain centres are subject to electric stimulation, which is turned on periodically. It was determined that a patient who was told that the stimulation in on started to move more dexterously in spite of the fact that the signal about the turning on of the stimulation was false, whereas turning the stimulation on without notifying the patient improved his/her dexterity only slightly or did not improve it at all. In another experiment, the role of the communication is shown by the results of studies on information provided to patients with respect to medications. As far as an intravenous infusion is concerned, those medicines mainly known to a patient are administered; sometimes painkillers, anti-anxiety medicines or antidepressants are added to it. These medications have a weak effect or no effect at all when a patient does not know that they were added. They have full impact only when the

patient was informed that they were added. It would seem that information is the main reason of efficiency. However, when we take a closer look at this phenomenon, we will see that information takes place in the therapeutic relation and that it is its part. It can be assumed that in the described experiments, provision of information constituted a closing of the relation. Provision of communication as an indispensable component of a relation may cause the release of full interaction which had hitherto been incomplete, possibly also impersonal and devoid of feelings.

Phases of Therapeutic Relation

In a therapeutic relation, it is possible to differentiate a preparatory period, a culmination period and a period of effect or relation. The preparatory period probably begins from obtaining information about the possibility of removal of ailments and lasts until the moment of the meeting with the doctor. It is also possible to take into consideration a belief that its beginning is the emergence of an ailment. The preparatory period gradually transforms into the culmination period. The culmination period is the time of direct contact between a patient and the therapist. At that time, the main stimuli attain the greatest density and strength and reach the best prepared receptors and reception. In this period, the placebo effect is initiated. The third period starts from the moment of leaving the therapist; however, some of the stimuli that cause the placebo effect may still function, in particular the medications recommended by the therapist. However, first of all, the placebo effect takes place in the form of improvement of health. It becomes revealed quickly after the culmination period or even in the course of its duration.

Medications and Placebo

As the third constituent of the relation, apart from feelings and information, I designated a reaction called behavioural. Behaviour is targeted at the patient, yet it bears features of cooperation, corresponding to interaction. Nowadays, when medicines are applied due to their well-known and proven impact, the application of a medicine is the core of a therapeutic relation. The focus of the doctor and the patient is on the medication. Perception is more focused on visible things than on fleeting feelings or information. A therapeutic relation, as opposed to the medicine, is weakly investigated and often overlooked in medical and psychological textbooks. Maybe due to this, in observations of a placebo, attention is focused on the medication even when only an apparent medication was applied which does not work.

Let us trace the mechanism of connection of an apparent medicine with elements of a therapeutic relation. A placebo has a specific source; it is given by the therapist to the patient with specific motivation, information and feelings. It is not possible to imagine a placebo without such a relational situation. Medicines given without information, motivation and feelings will be treated as an incomprehensible action, neutral or even hostile. An example of such a situation could be a pinch of harmless powder poured into tea by a stranger without explanation and without information. It would be treated as pollution or even as poison, along with all the feelings which accompany such an event. This would not be a therapeutic relation. The placebo cannot be isolated from motivations, feelings and information for a proper therapeutic relation. It cannot be provided without a therapeutic relation.

Without it, it ceases to be medically active and ceases to be a placebo. If the placebo is an active agent, it is not due to its physical or chemical substances, but due to the therapeutic relation that is always present during its administration.

Administration of medication or treatment in a therapeutic relation is a natural procedure and seems to be its fixed element, just like information and feelings. It is difficult to imagine a natural primitive therapeutic relation without the administering of any medicine or procedure within the broad meaning of these words.

Coincidence with the Concept of N. Humphrey

The health management system, according to the concept of N. Humphrey, evaluates the situation and makes the most beneficial decision according to survival criteria. The main stimulus is the hope for recuperation; the author emphasises, with a certain surprise, that a certain „outside permission” is necessary for the placebo effect (*...until the third-party influence releases it...*). This „permission” is an important part of the relation. The criteria of the health management system most probably evaluate the therapeutic relation positively and, under its impact, release the medicinal resources which may be a logical decision, understandable for everyone.

Conclusion and summary

The reasoning performed and described in this study leads to the creation of a consistent concept explaining the mechanism of the placebo effect. The placebo effect is an innate reaction (transmitted in genes) consisting in a decrease of disease symptoms as a result of the operation of stimuli contained in

a therapeutic relation. The therapeutic relation encompasses the proceedings of at least two persons with the motivations of a therapist and a patient, where medications are administered with the indispensable interaction of certain information, feelings and behaviour.

It seems that the intensity of individual elements of a therapeutic relation influences the dimension and the frequency of occurrence of the placebo effect. The effect seems greatest when the therapist and the patient are deeply convinced (without scepticism) of the efficiency of the administered therapy, even when this conviction is not sufficiently critical or erroneous. The described concept, relying on the collected and presented arguments, has a largely hypothetical character. An additional argument increasing its probability is its logical coherence.

As a result of adoption of the relational concept for the reaction of recuperation, new questions emerge, especially regarding the significance and mechanisms of the therapeutic relation. It is also possible to wonder about replacement of the name of „placebo effect” with the term „relational effect” or another similar term. Along with adoption of the concept of a relational reaction, difficulties related to the definition of a placebo disappear; there are no illogical premises related to the impact of an ostensible medicine, and the ethical problems becomes less urgent.

Bibliografia

1. Bąbel Przemysław, Efekt placebo: fakt czy artefakt? *Roczniki Psychologiczne*, t. XI, 2008, nr.1, 59-76.
2. Bąbel Przemysław, Psychologiczne działanie placebo..., *Studia Psychologiczne*. t. 44 (2006) z. 3 s 5-15.
3. Balint M.: *The Doktor, his Patient and the Illness*, Pitman Medical, 2. wyd. 1984.
4. Bowlby J., *Przywiązanie*, PWN, Warszawa, 2007.
5. Brody H., *The Lie that Heals, the ethics of giving placebo*, *Annals of Internal Medicine*, 1982, v. 97, s 112.
6. Brown Donald E. *Human Universals and their implications*, za Steven Pinker, *Tabula rasa, spory o naturę ludzką*. GDW Gdańsk 2008.
7. Brzeziński Tadeusz (red), *Historia medycyny*, PZWL, Warszawa, 1988.
8. Cassidy J. and Shaver Ph. R. (red), *Handbook of Attachment*, The Guilford Press, New York, 1999.
9. Dolińska Barbara, *Placebo*, Wydawnictwo „smak słowa”, Sopot 2011.
10. Furmark T, Appel L, Henningsson S, *et al.* (December 2008). „A link between serotonin-related gene polymorphisms, amygdala activity, and placebo-induced relief from social anxiety”. *J. Neurosci.* 28 (49): 13066–74. <http://www.jneurosci.org/cgi/pmidlookup?view=long&pmid=19052197>.
11. Grabowski Jakub, Leszek Bidzan, *Wykładowi neurobiologiczne efektu placebo*, *Psychiatria Polska* 2010. t. XLIV, nr. 2 s. 221-334
12. Hróbjartsson A, Gøtzsche PC (January 2010). „Placebo interventions for all clinical conditions”. *Cochrane Database of Systematic Reviews* (1):

- <http://mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD003974/frame.html>.
13. Hróbjartsson A, Norup M (June 2003). „The use of placebo interventions in medical practice—a national questionnaire survey of Danish clinicians”. *Evaluation & the Health Professions* 26 (2): 153–65.
 14. Humphrey Nicholas, *Great expectations: evolutionary psychology of faith-healing and the placebo effect* in *The Mind made Flesh*, Chapter 19, pp. 255-288, Oxford University Press, 2002.
 15. Jonas W. B., Levin J. S. *Essentials of Complementary and Alternative Medicine*, Lippincott Williams & Wilkins USA. Wydanie polskie: Kraków 2000 r.
 16. Kielhorn Rita: *Między pragnieniami a rzeczywistością*, Gestalt, Nr. 13, r. 1994, s. 25 -29.
 17. Lanotte M, Lopiano L, Torre E, Bergamasco B, Colloca L, Benedetti F. (2005) Expectation enhances autonomic responses to stimulation of the human subthalamic limbic region. *Brain Behav Immun*. 19:500-9. PubMed
 18. Mercado R, Constantoyannis C, Mandat T, Kumar A, Schulzer M, Stoessl AJ, Honey CR. (2006) Expectation and the placebo effect in Parkinson's disease patients with subthalamic nucleus deep brain stimulation. *Mov Disord*. 21:1457-61 PubMed
 19. Nesse R. M. i G. C. Williams, *Why we get sick*, VINTAGE BOOKS, New York, 1995 r.
 20. Rheims S, Cucherat M, Arzimanoglou A, Ryvlin P (August 12, 2008). „Greater response to placebo in children than in adults: a systematic review and meta-analysis in drug-resistant partial epilepsy”. *PLoS Med* 5 (8): e166.
 21. Shepherd M. and Sartorius N (red) *Non-Specific Aspects of Treatment*, Hans Huber Publishers, Toronto 1989
 22. Siegel Berni, S. *Love, Medicine and Miracles*, Harper Collins Publisher, New York 1986. Wyd. polskie Miłość medycyna i cuda, Dom Wydawniczy LIMBUS, Bydgoszcz 2011.
 23. Szawarski Zbigniew, *Mądrość i sztuka leczenia*, Wydawnictwo słowo/obraz terytoria, Gdańsk 2005 r.
 24. Wampold BE, Imel ZE, Minami T (2007). „The placebo effect: „relatively large” and „robust” enough to survive another assault”. *J Clin Psychol* 63 (4): 401–3.
 25. Wampold BE, Minami T, Tierney SC, Baskin TW, Bhati KS (2005). „The placebo is powerful: estimating placebo effects in medicine and psychotherapy from randomized clinical trials”. *J Clin Psychol* 61 (7): 835–54.
 26. *Traditional Medicine Strategy 2002-2005*, WHO Geneva 2005. (kopia w bibliotece autora)
 27. Wikipedia <http://en.wikipedia.org/wiki/Placebo>
 28. Wulff Henrik, R., *Racjonalna diagnoza i leczenie*, PZWL Warszawa, 1991.
 29. Zimbardo Ph.. C. and F. L. Ruch, *Psychologia i Życie*, PWN Warszawa, 1988.