

Homeopathy: Fantasy or reality?

Michael Frass, Ernst Schuster, Ilse Muchitsch, Beatrix Wulkersdorfer, Helmut Oberbaum, Michael Muellner and Menachem Oberbaum

Michael Frass, MD
Department of Internal
Medicine I, Medical
University of Vienna,
Institute for Homeopathic
Research, Interdisciplinary
College Graz Seggau,
Austria

Ernst Schuster, MD
Department of Internal
Medicine I, Medical
University of Vienna,
Institute for Homeopathic
Research, Interdisciplinary
College Graz Seggau,
Austria

Ilse Muchitsch, PhD
Department of Internal
Medicine I, Medical
University of Vienna,
Institute for Homeopathic
Research, Interdisciplinary
College Graz Seggau,
Austria

Beatrix Wulkersdorfer, MD
Department of
Internal Medicine I,
Medical University of
Vienna, Institute for
Homeopathic Research,
Interdisciplinary College
Graz Seggau, Austria

Helmut Friehs, MD
Department of Internal
Medicine I, Medical
University of Vienna,
Institute for Homeopathic
Research, Interdisciplinary
College Graz Seggau,
Austria

Michael Muellner
Department of Internal
Medicine I, Medical
University of Vienna,
Institute for Homeopathic
Research, Interdisciplinary
College Graz Seggau,
Austria

Menachem Oberbaum
Department of Internal
Medicine I, Medical
University of Vienna,
Institute for Homeopathic
Research, Interdisciplinary
College Graz Seggau,
Austria

Corresponding author.
E-mail:
michael.frass
@meduniwien.ac.at

Online xxxxxxxxxxxxxxxxxxxx

In August 2005, Shang et al. [1] published a study in *The Lancet* stating that homeopathy is no more than a placebo and is therefore a non-scientific method.

Before focusing on the study, we want to discuss the term “placebo”. Most scientists speak of placebo as a real thing, however, no one has ever had an opportunity to touch it. It is and remains a scientific term, which has never been proven in reality. In an analysis of clinical trials comparing placebo with no treatment [2] the authors concentrated on placebo treatments, which have been reported to help patients with many diseases, but the quality of the evidence supporting this finding had not been rigorously evaluated. Therefore, they conducted a systematic review of clinical trials in which patients were randomly assigned to either placebo or no treatment. A placebo could be pharmacologic (e.g. a tablet), physical (e.g. a manipulation), or psychological (e.g. a conversation). The authors identified 130 trials that met the inclusion criteria. After the exclusion of 16 trials without relevant data on outcomes, there were 32 with binary outcomes (involving 3795 patients, with a median of 51 patients per trial) and 82 with continuous outcomes (involving 4730 patients, with a median of 27 patients per trial). Compared with no treatment, placebo had no significant effect on binary outcomes, regardless of whether these outcomes were subjective or objective. For the trials with continuous outcomes, placebo had a beneficial effect, but the effect decreased with increasing sample size, indicating a possible bias related to the effects of small trials. The pooled standardized mean difference was significant for the trials with subjective outcomes but not for those with objective outcomes. In 27 trials involving the treatment of pain, placebo had a beneficial

effect, as indicated by a reduction in the intensity of pain of 6.5 mm on a 100-mm visual-analogue scale. The authors conclude that they found little evidence in general that placebos had powerful clinical effects. Although placebos had no significant effects on objective or binary outcomes, they had possible small benefits in studies with continuous subjective outcomes and for the treatment of pain. Outside the setting of clinical trials, there is no justification for the use of placebos [2]. While every study may be discussed as controversial, the fact remains that the real power of placebo may be neglected.

Going back to *The Lancet* paper [1], the effect of the publication was enhanced by an Editorial and a World Report condemning homeopathy. Having worked with homeopathy for years, we were astonished by this statement. In order to give the reader help in understanding the background to the paper, we will explain the drawbacks of *The Lancet* paper in detail [1] with special comments for colleagues who do not practice homeopathy.

Because “homeopathy” is not a protected designation, it may be used not only by homeopathically trained professionals but also by non-professionals. However, a minimum training is necessary to understand the basics of homeopathy. Actually, homeopathy requires a life-long training. The centre of homeopathy is the “Law of Similars”, meaning, that the same remedy, which leads to several symptoms in a healthy person may heal a person suffering from very similar symptoms. Because crude substances may exert a toxic effect, Samuel Hahnemann [3] developed the method of potentization. Potentization not only dilutes substances, but also changes their properties by vigorous shaking. Recent research [4] has revealed that thermoluminescence is affected

by preparations even exceeding Avogadro's number.

The title "Are the clinical effects of homeopathy placebo effects? Comparative study of placebo-controlled trials of homeopathy and allopathy" is misleading because the authors do not present a "comparative study", however it describes the two methods separately. Therefore, the title does not reflect the methods of the paper.

In the abstract the author's state that homeopathy works: when viewing the 110 studies of conventional medicine and the 110 studies of homeopathy, statistics evaluate a benefit of both methods as investigated in two separate investigations. A less pronounced heterogeneity for homeopathy trials as well as a higher quality of the investigated studies were found in the homeopathy group (19 vs. 8 %).

If one searches Medline, the number of randomized clinical trials (RCTs) is about 165 in homeopathy against more than 200,000 in conventional medicine. With these numbers in mind, the less pronounced heterogeneity for homeopathy trials as well as a higher quality of the investigated studies in the homeopathy group (19 vs. 8 %) is even more surprising.

Often the question arises as to why the number of homeopathic RCTs is not higher. The reason is that there are a number of differences between homeopathy and conventional medicine. Homeopathy is based on quality, which is impossible to measure when compared with quantity in conventional medicine. Furthermore, prescriptions in homeopathy are done on an individual basis, meaning that different potentized remedies may be used to treat patients suffering from a disease named with the same "conventional" diagnosis.

Problems may arise with large studies, which usually do not allow an individual prescription rather than routine administration. A logistic problem arises from the fact that there are no official resources for sound homeopathic research. As most homeopaths are working outside of research oriented institutions, knowledge of scientific research is limited.

A major limitation of the Shang paper is the missing declaration of the purpose of the study, which is neither mentioned in the Abstract nor the Introduction. Also, diminishing the number of papers from 110 to 8 in homeopathy and

from 110 to 6 in conventional medicine requires explanation: this deduction has been performed after the finding that both methods show positive results. Discharging "larger trials of higher quality" includes a bias, which should be avoided in academic research. As stated above, the study was not designed to directly compare homeopathy and conventional medicine, however, each method was evaluated individually. Using basic statistics, the random selection of the 14 studies is strongly suggested to be a post-festum hypothesis, not planned originally.

Even the findings with the 8 studies do not support the hypothesis that the results prove the uselessness of homeopathy. A major drawback may be feared because after expelling so many studies the original design of matching studies between the two methods is heavily violated. Comparing three studies using *oscillococcinum* and three using complex remedies with 6 conventional studies reveals the authors missing understanding of the basic principles of homeopathy. It is surprising that there are no references regarding the 14 studies. This would be a basic request for a paper of this level.

A further weakness of the study is that while funnel plots are believed to detect publication bias as well as heterogeneity and so enable detection of fundamental differences between studies, new insights suggest that both of these common beliefs may be seriously flawed [5,6].

For the reader, it would have been interesting to know at which level homeopathy would have become statistically significant. In addition, referring to such an important matter, the academic community tends to work on an 1% level of statistical significance to determine effectiveness.

Even more surprising, the authors state that using another sample of 8 trials would have led to a positive result (e.g. the 8 trials in "acute infections of the upper respiratory tract" mentioned in the Discussion). The authors do not hide their prejudice against homeopathy. The concerned reader is able to make his own decision on such scientific behavior.

In conclusion, we believe that the paper of Shang is a valuable example of an unfinished paper. We do appreciate the extensive work which was done for collecting the data. We want to refer the reader to serious scientific work published recently [7-9].

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