

LMHI Document Justifying Homeopathy-2019

Answers to Arguments Against Homeopathy

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Answers to Arguments Against Homeopathy

Homeopathic medicine has been under attack from its early years. The arguments against it are varied, have different forms and content. The following topics review some of the most common arguments and offer a probable response.

A) SAMUEL HAHNEMANN AND THE ORIGINS OF HOMEOPATHY

1. Hahnemann was not a scientist; at best, he was a quack

That proposition is a logical fallacy, called an *ad hominem* attack, meaning “to the man,” where the individual is depreciated instead of addressing the argument. In reality, Hahnemann was a recognized, respected and published, researcher before he developed his theories on homeopathy. The inductive method he applied to research his theories about homeopathy followed the methodology of his time, which were based on the Aristotelian/Baconian approach to the study of phenomenology.

Hahnemann studied medicine, received a doctorate, and was fully qualified to treat patients. He detested the use of high doses of often toxic compounds in the traditional practice of medicine he learned. Consequently, he slowly started to reduce the doses he used, to check whether they were still effective and the effect they might have-what we would call today, ‘the minimum effective dose.’

Hahnemann’s research articles were published in prominent and respected journals during his time. He dedicated years of research before publishing his initial work on homeopathy, about fifteen years before he published what he considered a comprehensive model of treatment. (Haehl, 1922)

He published the “*Apothekerlexikon*” (*Encyclopaedia of Pharmaceutics*), which was highly praised by prominent German scientists. Johann Bartholomäus Trommsdorff (1770–1837) - the purported father of modern pharmaceutics - wrote about it: "It is absolutely clear, complete, contains outstanding news and important facts; it is an excellent work; every pharmacist should have it. Hahnemann deserves the praise of all pharmacists." He also published several other fundamental articles, prior to his development of homeopathy, published in reputable professional journals. By focusing on personally attacking Hahnemann,

critics avoid having to account for Hahnemann's accomplishments, and the factual evidence he presented, and rejecting this material is unjustified, irrational, and biased, even if it is anomalous by current standards.

Divesting Hahnemann of accomplishments as a physician, researcher and pioneer in the science of pharmacology, is like rejecting Homer, Virgil, or Plutarch, in the history of literature; or Thucydides, Josephus, or Pliny, in the study of history. The outright, arrant, and indiscriminate rejection of Hahnemann's contributions should make us pause and question why this would be the case; what could be the motivation to close the door completely on evaluating fairly what can be of value, both concerning Hahemenann's contributions to the science of medicine and to homeopathy? Perhaps, there is a vested interest in not permitting homeopathy to be valued for what it is, and this is the reason for disregarding its careful science.

2. Hahnemann's theories are ridiculous and totally false

It is true that several of Hahnemann's analogies to explain homeopathy are now outdated by current scientific theories, but they were reasonable in his time. For example, Hahnemann used magnetism as an analogy to explain homeopathy, yet, the laws of magnetism were not established until Maxwell discovered them years after Hahnemann wrote the last edition of the Organon. Several of Albert Einstein's predictions and calculations were not proven until decades after he presented them. In addition, many renowned scientists, including Aristotle, Newton, Vesalius, Harvey, and many others, made erroneous assumptions and conjectures which time have proved wrong, and yet their valid findings are still respected and valued by the scientific community. Homeopathy's theories should be judged on the merit of the evidence that is available, which will be reviewed in another section. This false argument is called a "straw man," and tends to force you to focus on the distraction, by pointing out irrelevant details and making them larger than they are, rather than addressing the valid elements of the case.

We can just imagine the skepticism of the people who heard first that you could start a fire by striking two rocks against each other or twirling a stick against a piece of wood. Such actions, we easily accept today, create a spark, or enough heat, to make fire. The actual process of *succussion*, the forceful shaking of the homeopathic solutions Hahnemann developed is, analogously, a process that creates changes in the solvent, usually water, through molecular and atomic collision caused by the vigorous agitation of the medicinal solutions, which results in the development of the medicinal potential of the medicines. This will be discussed further in another section.

The data available about homeopathy cannot be logically discarded just because we don't have answers to some of the processes and mechanisms of actions involved. The evidence from 200 years of homeopathic research are anomalous from a classical physical/chemical paradigm, but progress can only be advanced if bias and prejudice are set aside to ascertain the truth.

B) HOMEOPATHY IS A PSEUDOSCIENCE

1) The assumption that Homeopathy is a pseudo-science:

a) Critics say homeopathy has not and cannot be experimentally verified because there is nothing to it; homeopathy is considered an impossibility, a ludicrous theory without any experimental demonstration; it is not a valid scientific-experimental idea. The medicines are considered, simply, plain water.

b) If it were a scientific assumption, it would not be so susceptible to confirmation bias and skeptics would also be able to find positive results. Fans of homeopathy find it helpful only because they are biased. It is not more scientific than shamanic healing, and its effects are only placebo.

c) If homeopathy were a scientific enterprise, it would recognize unfavorable and inconclusive results. However, people who favor homeopathy are not willing to recognize such data.

The response to these allegations is that: homeopathy is, evidently, part of medical history and the development of science, considering its impact in medicine and the fact it has remained in use for over 200 years. Science is a method, not a belief system. It consists of: an observation, the development of a hypothesis, the testing of such hypothesis, and the replication of the experiment, preferable by independent researchers to confirm the resulting data.

This is in fact what homeopathy has gone through, Hahnemann devised the initial experiments and methodology, through the course of several years, he published his results, and thousands of independent researchers, from around the world, confirming the validity of its finding, as long as the original experimental protocol is followed!

Homeopathy is a medical paradigm, as it is recognised and accepted by thousands of professionals, many of them scientists, and by different professional international organizations. Thus, historically, it has been included in medical dictionaries and dictionaries of scientific terminology of different countries, in scientific associations of medicine, and has hundreds of publications many of which have been peer reviewed.

In fact, many scientists involved in homeopathy have published inconclusive and negative findings regarding homeopathy. In addition, valid meta-analyses have addressed publication bias and have found that the representation of homeopathic trials doesn't show bias in favour of homeopathy. On the contrary, there is evidence of bias against homeopathy shown by the refusal, by journal editors, to publish positive trials of homeopathy, which leads to the conclusion that there is an active suppression of the publication of homeopathic data. (Walach, Jonas, Ives, & et_al, 2005)

Classifying Homeopathy as a pseudo-science: creates negative representations and connotations; and, alienates it from an unbiased appraisal of its value. Putting homeopathy in a negative light limits funding to evaluate it in detail, prevents scientists from considering it

seriously, indisposes potential practitioners from learning about homeopathy as a valid therapeutic approach, and averts the development of research, advance of new theories, and perhaps innovative treatment approaches that could benefit humanity. This is obviously unscientific on the part of obstreperous skeptics of homeopathy.

From a logical standpoint, this device to defame homeopathy follows the fallacies of: “hasty generalization,” by making judgements about homeopathy without considering all of the particulars, and also “slippery slope assumptions,” which entails an exaggeration of possible consequences of accepting a proposition by believing the unlikely possibility that homeopathic medicine would substitute conventional medicine across the board, or that patients would not receive the treatment they need when it should be conventional. This subterfuge attempts to dissuade people using an unwarranted warning of possible negative outcomes from accepting homeopathy. Such a manoeuvre is not only unscientific, but unethical and amoral – it deprives people from a cost-effective treatment at low cost, while decreasing the problems of becoming dependent on drugs, often more than one.

HOMEOPATHY IS A SCIENCE BECAUSE:

-It can be experimentally verified.

-Its experimental results are reproducible and can be verified by other researchers, as long as the proven protocol is followed conscientiously.

-It can use random sampling, specific techniques as double-blind controls, and other similar methods. However, unique elements within the homeopathic protocol need to be considered when adapting the current methods of evidence based medicine. (Weatherley-Jones, Thompson, & Thomas, 2004; Jonas, 2005; Bell & Koithan, 2006)

-All the gathered information can be documented and available for review and revision.

2. The experimentation with homeopathic medicines in healthy people is a waste of time and is of no importance.

One of the strongest aspects of the homeopathic explanation is the pure experimentation: the experimentation with medicines in infinitesimal doses in healthy people. Many substances were initially proven (experimented) in ponderable dosages. Later, pure experimentation demonstrates that the substances are biologically active even at a 30 CH (Centesimal Hahnemannian), and further, which are above the Avogadro’s number. Thus, even when there is an absence of molecules of the original substance, the homeopathic remedy is can produce effects under specific circumstances, following the condition of the proper selection of the medicine beyond of the placebo. (Sherr, 1994; Walach, Möllinger, Sherr, & Schneider, 2008; Möllinger, Schneider, & Walach, 2009)

However, review of such experimentation and their record (pathogenesis) has concluded that current published reports need to be improved and the current publications suffer from poor methodology in procedure and reporting. More research on this regard is needed, while

the currently available data has been used with pragmatic reliability for over 200 years. (Dantas, et al., 2007)

C) HOMEOPATHY AND MOLECULES.

1. There is nothing in the homeopathic granules. The homeopathic granules are only sugar. The remedy is only water.

-There has to be a carrier substance or solvent, just as conventional medicines have “excipients.” This argument amounts to saying that because medicines have fillers they can’t work. Therefore, there is sugar (sucrose and lactose), alcohol, water, and materials (molecules, atoms, ions) in the homeopathic granules or solutions, which are prepared starting from the original drug substance, solid or tincture. The original substance, be it mineral, vegetable or animal, is taken through a series of steps, following a methodology that includes: the process of trituration, mixture, dilution and succussion -a forceful shaking of the substance supposed to develop the therapeutic value of the agitated solution. How this happens, what happens and how this is related to a mechanism of action for the homeopathic medicines is still to be determined. The evidence for homeopathy should be assessed apart from the issue of mechanism of action. Really, as much as half of conventional medicine treatments, used to treat patients, have no known efficacy or mechanism of action. This attack on homeopathy is unfair, biased and prejudicial. (OTA, 1978; Kliff, 2014)

The processes in the production of homeopathic medicines were developed and described by Hahnemann in his *Organon of the Art of Medicine*, and in his *Materia Medica Pura*, and *Chronic Diseases*. (Hahnemann, 1846; 1835/1898; 1842/1996). These series of procedures, to prepare medicines in homeopathy, produce alterations in the compound that confers its therapeutic potential. Research with spectrophotometry, magnetic resonance imagery, and in-vitro and in-vivo studies, have shown that homeopathic medicines have medicinal effects. There is also research proposing that homeopathic medicines contain nanoparticles, which are measured with dilutions above Avogadro’s constant, and have been proven to have biological activity. By ridiculing the homeopathic medicines as simply sugar, skeptics avoid confronting the evidence for homeopathy. (Bell & Koithan, 2012)

Homeopathy detractors usually miss the fact that homeopaths frequently use what are called “low potencies/dilutions/dynamizations,” whose concentrations of medicinal substances are within Avogadro’s constant and, therefore, molecules of the original substance can be found in these dilutions. This sort of faulty judgement is called “hasty generalization,” where the premises of the argument are based on a limited understanding of the issue and careless and rushed judgement. (Gula, 2002)

An additional scientific example, of how powerful low dosages can be, comes from a recent tragedy that occurred in the city of Flint, Michigan, in the United States. There, hundreds of people, primarily children were hurt by high levels of lead, whose “acceptable” level is of 15 parts per billion; that corresponds to about a C6 homeopathic dynamization, a commonly used preparation. There are hundreds of compounds in our water and soil, at such low concentrations which are very toxic to the organism. Children are particularly affected at

about 100 parts per billion of lead, which is well within what can be a homeopathic preparation. So, asserting that homeopathically prepared substances can have a biological effect is well within currently accepted scientific biochemical research and data. (Kennedy, Seneff, Davidson, JW, & Haley, 2016)

Homeopathic medicines have gained legal status as drugs through official pharmacopoeias of different countries (EEUU, Brazil, Great Britain, India, and Mexico), all of the homeopathic pharmacies in these countries follow standards and regulations for the manufacture and marketing of homeopathic medicines. Such recognition of homeopathy is based on the history of homeopathy's use and the available evidence of effect and efficacy though over two hundred years proving its efficacy and safety. Two other pharmacopoeia, though mostly homeopathic, include instructions on the manufacture of homeopathic medicines. (HPUS, 2016; IPC, 2017; ECH, n.d.)

2. Only molecules, or atoms, can have a biological effect.

This is a false argument because there are diverse phenomena in nature, and therapeutic procedures in medicine, that have biological effects without the presence of atoms or molecules. There are no doubts about the healing properties of sunlight, ultrasound, electricity, cold, heat, all which act through energy; words can hurt or cure; good and bad news can also have biological effects-none of these are the actions of atoms or molecules but information. These are all manifestations of non-material factors that can affect biological function in organisms. It would be a logical fallacy to say that homeopathic medicines prepared to dilutions beyond Avogadro's constant have no biological effect based on the concept that medicinal substances can only be molecularly based; the evidence for the biological effect of such preparations comes from thousands of case reports and studies published in thousands of professional journals over 200 years of homeopathy's existence written by reputable and honest professionals and scientists. (Davidson, 2014; Swanson, 2016)

In addition, physicochemical studies of homeopathic solutions have established, unequivocally, the presence of nanoparticulates of the starting raw materials, even at ultra-molecular dilutions beyond Avogadro's number, and, that these elements are found in the air-liquid interface of the solvent, and that once the concentration of the material reached a threshold of a few ng/ml, further serial dilutions did not result in a concentration reduction and an asymptote was formed, a non-expected result. Such research included other preparations, which differed from those made by the classical procedure of manufacturing homeopathic medicines -which involves trituration and succussion, and not just simple dilutions- to serve as controls. The research used Fourier Transform infrared Spectroscopy (FT-IR), and Transmission Electron Microscopy/Selected Areas Electron Diffraction (TEM/SAED). Other theories trying to explain the conformation of homeopathic medicines have been proposed but they lack sufficient validation, and some are more speculative in nature. (Chikramane, Kalita, Suresh, Kane, & Bellare, 2012)

3. The idea about infinitesimal doses is silly - the laws of physics and chemistry would have to be re-written.

Detractors have pretended to exterminate Homeopathy by attacking the principle of the infinitesimal doses, despite homeopathy being much more than that; the core principles of homeopathy do not refer to the need of infinitesimal doses for the practice to be called homeopathy; the main principle is similarity between the effects of the therapeutic substance and the presenting symptoms of the patient. Simplistically focusing on only one aspect of homeopathic practice, out of context, is an attempt to distract the argument by focusing on making fun of an apparently vulnerable element, instead of looking at the whole system and what it represents, a modality of treatment that has survived the test of time, and malicious attacks, since its inception. The two other core principles of homeopathy are: the individualization of the medicine based on the patient's totality of symptoms; and, the minimum dose, the smallest amount of medicine necessary to help the patient. This later principle changed the way conventional medicine came to be practiced from then until today, the use of the minimum therapeutic dose. Using the concept of infinitesimal doses, also called ultra-molecular dynamizations, to represent all of homeopathy is a case of the 'red herring' fallacy. (Coulter, 1982)

Furthermore, as noted above, there are specific elements in the homeopathic medicines that provide information, perhaps in the form of electro-magnetic or other forms of energy. Every living organism is an open system operating far from thermodynamic equilibrium, and exchanging energy, matter and information, with the external environment, with exchanges performed through non-linear interactions of billions of biological molecules, components, at different levels, from the quantum to the macro-dimensional. Living cells have an inherent tendency towards quantum coherence, which permits long range interactions such as synchronization of cell division processes. The dynamics that support life have, at its foundation, key quantum phenomena leading to a state of order of matter coupled with electromagnetic fields, organized in hierarchically more complex levels and states of coherence. These integrated levels of coherence can be explained by Quantum Field Theory (QFT). Quantum Electrodynamics (QED), part of the QFT, deals with the interactions between EM fields and matter. Water, a natural bipole, essential for life, is the medium through which myriads of biochemical reactions are executed, and a fundamental matrix that manifests the coherent phenomena and structure. The disruption of such multi-systemic cohesion is manifested by disease. Homeopathic medicines are a vehicle of information that imparts the organism with the stimuli towards correcting disorder. (Manzalini & Galeazo, 2019)

As an example, cells of lung carcinoma have been proven to produce, in vitro, repair proteins, found through a proteomic analysis, after being affected by homeopathic medicines. This response from malignant cells was seen through all the embedded cellular components: cytoplasm, endoplasmic reticulum, Golgi complex, mitochondria, nucleus, plasma membrane, and extracellular membrane. The activated proteins are related to mechanisms of transcription as well as to the defense proteins, indicating that the cells are recovering from their cancerous condition. These homeopathic preparations act in plants and animals, where there is limited expression of suggestion or the placebo phenomena. They are water solution that receives, store, and transmits electromagnetic signals proceeding from the solutes, even at ultramolecular preparations, as demonstrated by Nobel Laureate Luc Montagnier. (Niurka Meneses, 2018)

Implying that the laws of physics and chemistry would have to be rewritten if the infinitesimal doses are considered biologically active is an "argument from consequences"

logical fallacy. It infers that if such preparations' effects are accepted as true the whole edifice of concrete physical reality would crumble- of course, that is ludicrous! The discovery and development of quantum physics didn't destroy Newtonian physics, nor has quantum theory and nanoparticle technology changed the laws of physics, they have complemented and expanded the knowledge of reality. And probably, it is a quantum theory application what could provide the mechanism of action of homeopathy. (Fisher, 2016)

The concept of infinitesimal doses of the original substance, which are an extreme of the principle of providing the smallest effective dose for a patient, are often diluted and succussed (forcefully shaken), to make it exceptionally small. Thousands of published cases successfully treated, including many with life threatening diseases, which together amount to more than just anecdotes, they are evidence of the effect of the homeopathic dosages of medicinal substances. These results have been independently replicated, by thousands of researchers around the world. This concept was not hypothesized, or theorized, it was an empirical finding. As Hahnemann started treating people with small dosages, and finding there were unwanted effects, he decided to dilute and potentize the solutions more and more while still getting positive effects; by cutting the dosages he minimized negative effects. It took him more than forty years of experimentation to fine tune the method. The effect of these highly-diluted substances has been seen in responses from healthy volunteers as well as patients. These preparations have also been found to affect in-vitro cells and animals; effects have also been seen in randomized double-blind placebo controlled trials. In addition, these medicines have been used for over two hundred years in the treatment of thousands of patients, by thousands of physicians from around the world. (Hahnemann, 1842/1996)

Another source of evidence for the effects of very small dosages of substances comes from a source outside of the homeopathic community. Professor Edward Calabrese, from the University of Massachusetts, USA, and his colleagues, have conducted thousands of experiments regarding a phenomenology of a dose-response by which, contrary to a common assumption, biological system do not always respond in a liner manner, where progressively higher dosages provoke progressively greater biological responses; what is found, instead, is a variable response characterized by low-dose stimulation and high-dose inhibition encountered both in-vitro and in-vivo experiments with thousands of substances and various models. This phenomenon is called: Hormesis. In the non-homeopathic literature, the phenomenon describes the reactions of organisms to substances at measurable amounts but often with concentrations falling within the lower dynamizations of homeopathic medicines. This phenomenon of polar biological activity depending on dosage has been seen in conventional medicine; for example, low dosages of antipsychotic drugs can treat hallucinations, but higher dosages may produce them. Research on hormesis is relatable to homeopathy. (Boericke, 1965; Calabrese & Blain, 2004; Calabrese & Jonas, 2010; Calabrese, 2013)

In summary, disregarding the evidence for homeopathy by using ultramolecular dosages used in homeopathy is a subterfuge of the type of the "straw-man," to avoid facing the real facts. However, the evidence for the clinical effect of ultramolecular dosages comes from clinical case reports which, though not purely anecdotal, does not correspond to the highest categories of the evidenciary pyramid but has to be included, nevertheless, because it is still within the scientific parameters for evidence. However, there is other, stronger, evidence as will be reviewed subsequently.

4 . The water memory is just an absurd idea. Studies regarding the memory of water memory showed that it is unsubstantiated, and even a delusion

The experimental work about the 'memory of water' was introduced by the Professor Jacques Benveniste, an eminent and respected professional career in France prior to publishing his research. As a researcher in the field of the allergies he proposed that an allergen behaved in the similar way regardless of the degree of dilution. He tried to verify it in a practical way and he found a positive response to the allergen even if it was prepared in very high dilutions. Though he was ridiculed by a team of non-scientists who reviewed his work he continued his work outside of the INSERM French laboratories from which he had been fired after the debacle, with all his prior honors and achievements stripped away. (Schiff, 1995)

The phenomena he encountered, and the facts of his observations, made Benveniste think that what was important was not the molecules of the original substance but the specific information originating in the biological substance incorporated into the molecular structure of water. In this way, the solutions thus prepared behaved as if it carried the 'memory' of the original substance. This is how it is possible to produce a response in biological systems, even in the absence of the molecules of the original substance. This observation has been replicated independently.

In 2009, Professor Montagnier, discoverer of the HIV (Human Immunodeficiency Virus) and Nobel Prize of Medicine, vindicated Professor Benveniste and asserted in an interview published in *Science*, that the hypothesis of Water Memory was serious: "What I can say now is that the high dilutions are right. High dilutions of something are not nothing. They are water structures which mimic the original molecules. We find that with DNA we cannot work at the extremely high dilutions used in homeopathy; we cannot go further than a 10-18 dilution, or we lose the signal. But even at 10-18, you can calculate that there is not a single molecule of DNA left. And yet we detect a signal. (Montagnier, Aissa, & Et-Al, 2009; Enserink, 2010; Montagnier, Giudice, Aissa, & et-al, 2014).

Another supporter for the serious consideration of Homeopathy has been Nobel Prize of Physics, D. Brian Josephson, who has written: "Simple-minded analysis may suggest that water, being a fluid, cannot have a structure of the kind that such a picture would demand. But cases such as that of liquid crystals, which while flowing like an ordinary fluid can maintain an ordered structure over macroscopic distances, show the limitations of such ways of thinking." (Josephson, 1997)

Another researcher, Professor Rustum Roy, from Pennsylvania State University, once wrote: "For the record, I have never studied or held a position for, or against, the clinical effectiveness of homeopathy. However, I am a materials chemist who has written one of the most cited papers in the materials science on aqueous solutions." In his work, he studied the extraordinary biological properties of ultradilute aquasols (water with one part per million of solid particles) and the structure of water. He asserted that there is agreement among all those who have studied liquid water that it can be a complexly versatile solvent. As much as 64 highly anomalous changes in the properties of water have been found, which correspond to at least an equal number of structures of liquid water. Water is considered a "polymorphic"

substance, therefore, it is not unsound to consider water as the main carrier of information from dissolved biological substances. (Roy, Tiller, Bell, & Hoover, 2005) (Roy, 2007)

Diverse techniques have been used to study homeopathic medicines in research, such as thermodynamics, thermoluminescence, structural analysis of water, magnetic resonance spectroscopy, and others, that have demonstrated changes in the physicochemical characteristics of water, with the procedures used to prepare homeopathic medicines. It is suggested, such processes produce somewhat stable supramolecular structures, which may include nanobubbles of atmospheric gases with altered water structures highly ordered around them. (Bellavite & Signorini, 2002)

The quantity of research that have participated and collaborated to corroborate these findings, and the support of eminent researchers as Professor Luc Montagnier, impede any valid rejection of the evidence apriori, on scientific grounds, without a thorough and unbiased review of the evidence.

D) HOMEOPATHY IS INEFFECTIVE AND PROVEN TO BE FALSE

1. Randomized placebo controlled studies have shown homeopathy doesn't work

Though the Randomized Double-blind Placebo Controlled Study (RDBPCS) has been considered the pinnacle of evidence based medicine, with the meta-analysis of RDBPCSs being the tip, some conventional scientists question the absolute necessity of such trials and suggest looking at other data to determine the validity of a treatment. (Glasziou, Chalmers, Rawlins, & Mc Culloch, 2007; Leaf, 2013)

Some studies performed by skeptics have concluded that homeopathy has no effect beyond placebo. However, careful review of those studies has showed they have been biased and discarded or washed out much positive data, so they could reach their apriori conclusion that homeopathy could not work. (Frass, Schuster, & Et-Al, 2005; Kiene, Kienle, & von Schön-Angerer, 2005; Thompson, 2005)

The conclusions of a significant number of comprehensive systematic reviews have demonstrated that Homeopathy has a positive and more specific effect than just a placebo. Some randomized controlled trials showed a significant statistical difference among Homeopathy and placebo. However, often this effect was found to be small. But, small is very different from non-existent, as detractors contend. Therefore, more research is justified.

Since 1991 six comprehensive reviews about Homeopathy have shown to be positive, a fact acknowledged even by an overall negative assessment, already deemed biased. (Shang, Huwiler-Müntener, Nartey, & al., 2005)

THE SIX META-ANALYSIS THAT ARE FAVORABLE AND REPORTS THAT HOMEOPATHY SURPASSES PLACEBO IN THE BIOLOGICAL-CLINICAL EFFECTS ARE:

1) Kleijnen et al. 1991. *British Medical Journal*. With 105 studies in favor of Homeopathy (77%), compared to placebo. (Kleijnen, Knipschild, & ter Riet, 1991)

2) Boissel et al, 1996. *A Report done by the European Commission*. 15 studies of very high quality. It recognized a significance of $P=0.0002$. Conclusion: Homeopathy is more efficient than placebo. (Boissel, Cucherat, Haugh, & Gauthier, 1996)

3) Linde et al,1997. *The Lancet*. 89 studies of very high quality. Conclusion: It is not possible that the medical effects of Homeopathy are completely due to placebo. (Linde & et_al, 1997)

4) Linde et Melchart, 1998. *Diario de medicina Complementario y Alternativo*. 32 studies. Conclusion: Individualized Homeopathy is more efficient than placebo.

5) Cucherat et al, 2000. *European Journal of Clinical Pharmacology*. 16 trials showed effect above placebo. Conclusion: More trials using homeopathy were positive than placebo. (Cucherat, Haugh, Gooch, & Boissel, 2000)

6) Bornhoft G., Matthiessen P. 2011. Report carried out by the Swiss Federal Office of Public Health. This report uses the assessment of the health technologies and their efficacy. Conclusion: homeopathic medicine is a viable medical treatment, with clinical effectiveness, safety and reduced cost. (Bornhoft & Mathiessen, 2011)

According to The British Faculty of Homeopathy ***the randomized controlled trials have demonstrated a positive effect for Homeopathy in the treatment of a series of symptoms that includes:*** allergies, respiratory tract infections, acute diarrhea in children, flu, rheumatic diseases, vertigo, fibromyalgia, osteoarthritis, sinusitis, acute ear infection, chronic fatigue syndrome and premenstrual syndrome (PMS). (<http://facultyofhomeopathy.org/research/>)

The ***observational clinical studies*** show in a consistent way that more than the 70% of the patients have benefits if they have received homeopathic treatment. Many people have tried the conventional treatment as their first option, but it has been a failure. (Marian, et al., 2008)

The Liga Medicorum Homoeopathica Internationalis (LMHI) has composed and updates a document *Scientific Framework of Homeopathy 2015* that lists and organizes research based on quality of evidence. The levels of evidence are: I, II a, II b, for different diseases that has been treated with Homeopathy. (LMHI, 2015)

2. The study which appears in The Lancet magazine on August 2005 (Shang) definitively demonstrated that Homeopathy is a placebo.

As noted and referenced above, this trial has been discredited and proven to be poorly conducted and biased against homeopathy. We will consider as central arguments for

assessing this point the ones suggested by The Faculty of Homeopathy of London, in its document that can be seen on internet *We answer the Critics* (www.facultyofhomeopathy.org)

Shang's conclusions were based on only 8 trials of a list of 110, although it seemed as if were used the 110 trials and they communicated to the media as if it were.

The study did not fulfill with the generally accepted rules for the meta-analysis (QUORUM declaration) that assessed the quality of the meta-analysis reports of randomized controlled trials, despite the fact that this statement had been published in The Lancet in 1999.

The final conclusion of this research against the Homeopathy is based on only one partial study; if we remove this trial from the analysis, homeopathy demonstrates to have more effect than the placebo. Dr. Peter Fisher, Clinical and Research Director of the Royal London Homeopathic Hospital, has written a detailed work about these two studies. (Fisher P. , 2006)

Another interesting work that echoing Dr. Fisher's rebuttal was carried out by Dr. Jose Eizayaga. He presents that, though Shang's study was innovative in comparing conventional medicine and homeopathic studies, following the premises of choosing studies considered to show low bias potential as well as large enough to show significance, the meta-analysis itself, by following such criteria turns out to be biased. Many of the studies left out of the review were the smaller ones, which tended to show positive results, considering them biased, even though were of good methodological quality. However, by statistical probability, well conducted studies with smaller numbers of subjects have a greater chance of being very positive or very negative. Several of the homeopathic studies with positive results, deemed of high methodological quality were excluded, because Shang and his colleagues didn't find conventional trials to compared them with. In fact, many of the smaller homeopathic studies also showed high methodological quality, and yet, these were also rejected from the analysis. The results of such criteria, among other shortcomings in Shang's meta-analysis, is to bias the results against homeopathy. (Eizayaga, 2013)

Besides the fact that there is research that shows evidence of homeopathy's clinical effect, regardless of whether a viable mechanism of action has been elucidated, there is the fact that millions of treatments, for more than 200 years, have been provided to patients suffering from all kinds of clinical conditions, including life threatening conditions. Case reports have been published in thousands of journals around the world providing evidence of its effect.

3. The concept of Medicine Based on the Evidence is against Homeopathy

According to experts, there are five or six levels for assessing a study regarding the medical criteria based on evidence; it depends on the country. Level one is the highest level of evidence and level five, or six, the lowest. In some of these classifications, experts' opinions are counted at a very low level of evidence, but it is still considered evidentiary. According to this model, the highest level of evidence is reserved for the systematic reviews of meta-

analysis of randomized controlled trials and the randomized controlled trials, followed by cohort studies and case series.

Seventeen meta-analyses focused on RCTS in 15 specific areas: anxiety, children diarrhea, (...), muscle weakness (?), dementia, depression, headaches and migraines, inducing births, treatment and prevention of influenza, osteoarthritis, intestinal obstruction after surgery, allergic rhinitis, seasonal rhinitis and vertigo.

In the Framework ECH-LMHI appears: “A critical approximation has been applied by Jonas, Kaptchuk and Linde in 2003. The Level I of evidence is obtained from the children diarrhea and allergic seasonal rhinitis. Other meta-analyses showed the same level for allergic rhinitis, intestinal obstruction after surgery, rheumatoid arthritis, and protection for toxic substances.

Level II a of evidence is obtained from asthma, fibromyalgia, influenza, muscle aches, otitis, some types of acute pain, side effects of radiotherapy, strains, ear, nasal and throat infections.

Level II b of evidence is obtained from the treatment for anxiety, hyperactivity in children, irritable bowel, migraines, knee osteoarthritis, premenstrual syndrome, pain associated to delayed breastfeeding after the birth, prevention of nausea and vomits during a chemotherapy, septicemia, post-tonsillectomy analgesia and aphthous ulcers.

E) HOMEOPATHY, SUGGESTION, INVESTIGATION AND SCIENCE:

1. The effect of homeopathic treatment is just a placebo effect

Any medical intervention and therapeutic action has what is called a “non-specific effect,” also called a “placebo effect,” which means: “I shall please.” The placebo effect works through the patient’s own expectations and wishes. Clinical interventions activate the patient’s own self-healing mechanisms, mediated by the therapeutic relationship of the healer and the healing ministrations. Usually, the patient must have a degree of faith that the intervention will be helpful, though this is not absolutely necessary. Spontaneous healing happens in some instances, even in severe pathologies such as cancer but except in self-limiting conditions such cases are rare. Placebo effects happen with virtually all healing modalities, and are now encouraged, as part of the modern therapeutic approach towards healing and not just a nuisance that muddles research findings. (Shapiro & Shapiro, 1997; Harrington, 1997; Benedetti, 2009)

The placebo effect varies in efficacy depending on the intervention. A warm, empathic and understanding healer will tend to have higher rates of placebo responses. Surgery tends to have the highest, followed by pharmacological interventions. Even the color and size of a medicine has a distinct placebo effect. Such reports, published in books and journals, are now easily available on the web, and in many academic libraries around the world. Several case series of epidemics treated successfully with homeopathy have been published, starting with Hahnemann, of cholera, scarlet fever, influenza, measles, yellow fever, typhoid fever, and

others. These deadly infectious diseases were treated homeopathically for over one hundred years, around the world, prior to the advent of antimicrobial drugs.

Therefore, there is no question that some of the responses to homeopathic medicines are due to a placebo component. In fact, the homeopathic intervention can have a high placebo response, considering the practitioner's, usually, very active involvement of the practitioner, through listening, understanding, and showing concern for all the issues and particulars of the patient's concerns. However, not all the results found in homeopathy can be attributed to placebo. Thousands of cases of life threatening diseases have been treated with homeopathy, with published statistics showing lower mortality than the treatment used by conventional doctors at the time.

Such reports, published in books and journals, are now easily available on the web, and in many academic libraries around the world. Several case series of epidemics treated successfully with homeopathy have been published, starting with Hahnemann, of cholera, scarlet fever, influenza, measles, yellow fever, typhoid fever, and others. These deadly infectious diseases were treated homeopathically for over one hundred years, around the world, prior to the advent of antimicrobial drugs.

Dr. André Saine has been compiling much of this material regarding epidemics, proving the efficacy of homeopathy in deadly infectious diseases. According to some of the vast compiled data, he found that among 146,237 patients under Pre-Antibiotic Allopathy (PAA) there were 35,698 reported deaths for an average mortality rate of 24.4%. In contrast, 25,216 patients with pneumonia under homeopathic had only 866 reported deaths, a mortality rate of 3.4%, or one-seventh the rate under PAA. In another report, gathered by the Armed Forces, during the influenza epidemic of 1918-1919, out of 66,092 cases treated homeopathically there was a mortality of 0.7%, compared to 5.7% out of 688,869 cases treated according to PAA. (Saine, 2013)

There are case reports of homeopathic treatment given to individuals where any type of suggestion is highly unlikely. For example, some patients have received the medicine while unconscious due to coma; medicines given to an infant through the mother's breast milk, or when they are so young that there is no probable neuronal system yet developed to have a placebo response any different from the mother's care. Homeopathic medicines have been given to patients while asleep, particularly when they have been agitated or uncooperative in taking the medicines, and there has been positive change in their symptomatology. Therefore, homeopathy can act without activating placebo response systems in patients.

There are several, high quality, randomized double blind placebo controlled trials whose results favor of homeopathy over placebo. These results are not large, but they are positive. Reports to the contrary come from meta-analysis published on the trials of homeopathy that suffer from serious flaws, as has reviewed above. Other studies are invalid due to faulty or deficient methodology; these are discussed in another section.

Besides the clinical effect on humans are the uses of homeopathy in veterinary medicine, and experiments, and treatments, carried out in crops which can be counted outside of the placebo effect.

In addition, labelling homeopathy as just placebo shows bias as there are not mass media campaigns against the conventional doctors who use placebo responses every day in their practices, knowing or unknowingly. And considering the mass advertising of conventional medicines, the likely influence this has on people's responses to them is greater than with homeopathy. Besides, research shows that the placebo can be beneficial (3).

Considering this, it is obvious that homeopathy is being treated unfairly, and evaluated by unreasonably higher standards than conventional medicine, in certain aspects, such as the amount of placebo effect involved and whether there is actual evidence for homeopathy showing clinical effects. The issues with the actual mechanism of action are understandably questioned, but the lack of a mechanism of action should not be a reason to reject valid clinical data.

2. Homeopathy only works on patients who are suggestible and/or already believe in homeopathy

This argument corresponds to the previous one. As with any treatment, belief in a treatment is a significant factor in a person's response to treatment. However, new patients usually seek Homeopathy due to any of the following reasons:

1) Conventional medicine did not solve the health problem(s) they have, even though it was provided by well-intentioned and caring practitioners who displayed faith and motivation in their own procedures, and yet failed to heal. Frequently, these patients responded and recovered with homeopathy, even though they had little faith it would work. (Avina RL, 1978)

2) Though usually dismissed by logicians, the reason of tradition or authority is not necessarily invalid. People will not use a medical treatment that doesn't work or spend money if it is just a waste. Many prominent families, including several royal families in Europe, and Catholic Popes, have traditionally use homeopathy for their treatment even though they have access to the best conventional medical care.

3) They do not want to have drug dependence. Homeopathy is used only when the symptoms are present; once there is a positive response the medicine should be stopped, and no further intervention is provided while improvement continues. There is no dependency on homeopathy and patients often go for months without needing a consultation, with symptom improvement.

4) The drug side effects that they have suffered or could suffer. Many patients suffer, not just from their conditions, but also due to side effects of medicines they have to use regularly to manage symptoms. It is important to consider here that conventional pharmaceuticals are implicated as the third cause of death, according to a co-founder of the

Cochrane Collaboration, a world respected institution of evidence based medicine research. (Gotzsche, 2013)

5) Intolerance or hypersensitivity to a drug they have used. There are a number of patients that have trouble tolerating any conventional medicines, even at the lowest dosages. They will likely show sensitivity to homeopathic medicines but the dosaging on homeopathy is more amenable to adjustments and in time they are shown to show improvement in their condition, which may have endured for a long time prior to homeopathic treatment.

6) The search of a treatment of diseases that would be respectful with the patient, nature and the environment. Often, patients complain of the lack of care and attention they believe they need and deserve. The homeopathic system includes this complete attention to provide the best care. (Astin, 1998)

7) Because the prescribed medicines could be very expensive. Conventional medicine of often out of reach for the patient. Compared to the lower cost of homeopathic medicines. Research shows that there can be a significant cost-savings in the treatment of patients within public health systems. (Ammon, Gasser, & Et_al, 2011)

8) In danger or serious situations (ICU, cancer...). Patients will approach homeopaths when they find conventional treatment is offering limited possibilities. Though homeopathy is not a panacea, homeopathic clinicians and patient report that homeopathy has been useful in relieving their condition.

9) Because any relative or close friend recommend it, or even his/her G.P. does not support homeopathy. This is a significant situation, when people are often willing to use the treatment and not even tell their regular physician they are using it, for fear of ridicule or scolding; yet, still they want to give it a try, and often continue to use it despite the negative responses from other people.

3. Homeopaths need to listen to their patients longer than a conventional doctor because they must influence them by suggestion.

Though the time a homeopathic practitioner spends with a patient, particularly at the first visit, this is not always the case, and it is certainly not the case during the follow up visits. There are prominent homeopaths who see many patients every day in a short period of time, from a few seconds to few minutes. Yet, the patients continue to respond to the treatment in ways that do fit the model of program based on suggestion. It is also not unusual to find treatment being carried out by mail (electronic or snail), or by telephone or by e-mail, and still, the patients respond effectively to the treatment. These conditions are less than optimal to create the ambiance where suggestion is typical carried out.

Another state in which suggestion is not likely to occur is in chronic diseases. These patients have often consulted other primary care physicians and specialists, and tried a variety of treatment. Very often these practitioners have been very knowledgeable and caring and yet, the patient didn't respond to the conventional treatment. The homeopath's approach in such cases is by itself insufficient to provide the clinical results often seen. Of course, this is a

factor that only now is being explored more closely. There is no question that homeopathy, as with any healing modality, has a placebo component, but the action of the homeopathic medicine is still seen beyond the non-specific effects of the intervention. (Davidson & Jonas, 2016)

F) HOMEOPATHY IS A VERY OLD, OUTDATED, MEDICINE; IT CAN'T BE EFFECTIVE. IT WAS A MEDICINE FOR THE XIX CENTURY NOT FOR THE XXI CENTURY.

1. Homeopathy is an anachronistic system.

The fact that homeopathy has survived for over 200 years, despite vicious and malicious attacks against it, is remarkable. Not only has homeopathy's original methodology remained viable, replicable and confirmed, for generations of practitioners, but it has also been adapted to be studied by modern methodologies. Also, considering the limitation of conventional medicine in treating certain conditions, particularly chronic conditions, the rise of antibiotic resistant strains of bacteria, and the fact that conventional pharmaceuticals is the third cause of death in civilized countries, after heart disease and cancer, it is medical treatment eminently suitable for the 21st century. (Kuzniar, 2017)

2. Homeopathy is ridiculous; it should be expunged

The aggressiveness and righteousness of the attacks against homeopathy are as anachronistic as the inquisition and witch-hunts; if they were true scientists, they would have an open-minded skepticism rather than saying: "I know it can't work because it doesn't make sense!" Science has been built by working to explain anomalous data. Homeopathy has plenty of data to contemplate; a lot of it is mystery, which may hopefully be discovered with the help of adequate funding. This is the ethical thing to do, to relieve humanity's suffering. Homeopathy will not displace conventional medicine, which is extraordinary in treating emergencies, but can complement it very well.

Instead, facts that do not have an explanation within the conventional paradigm are considered false a-priori. Considering that with the identification of dark matter and energy only 5% of the currently known universe appears to be matter as we know it; the mathematics that could explain this state are not developed, as Brian P. Schmidt, Nobel Prize of Physics, has stated. There should be room for some humility and a spirit of open inquiry. (Schmidt, Tucker, & Davis, 2015)

3. Nothing has been discovered in Homeopathy since Hahnemann time.

This is inaccurate. The number of homeopathic medicines available and proven has increased, from 103 medicines in Hahnemann's time, to a couple of thousand registered. Of those, about 260 medicines are the most commonly used. There are new mechanized ways to manufacture medicines and modern technology is being used, and methodologies applied, to study homeopathy.

Clinical experience in homeopathy is quantitatively wider, with thousands of doctors practicing, and millions of patients having received homeopathic treatment. Furthermore,

there are diseases at this time that when Hahnemann was alive, 200 years ago, were less frequent or did not exist, as conditions that were common in Hahnemann's time are rarer today. Homeopathy is currently used in the five continents (in very different environments; in small villages, big cities, mountains and plains, jungles, deserts, cold and warm seas, Ecuador, tropical and subtropical climates, etc.

The clinical experiences of Hahnemann were proved and developed by many teachers and hundreds of relevant doctors of the XIX, XX and XXI centuries, and new methods of studying cases and selecting the more homeopathic medicines have been developed. Furthermore, in the last fifty years there have been experiences with complementary treatments. In addition, new medicines continue to be studied and studies deepening the knowledge of the older medicines is being carried out.

4) Homeopathy violates the natural laws as we know them today.

Since the time of Galileo, the natural laws have been identified but not accepted by the establishment due to reluctance of those leaders uncomfortable with change of their cherished paradigms. The findings of Quantum physics again forced civilization to come to terms with new knowledge. We are frequently encountering new observations regarding the nature of the universe. Such data has been gathered by a direct observation of the same nature. From an initial inference and by induction, general theories are developed which then are confirmed by deductive methods. That was the origin of homeopathy, by Hahnemann becoming the initial laboratory for his experiments, which was then extended to acquaintances, friends and colleagues to extend across the world with time. Hahnemann proclaimed to have found and established the principles and laws of the homeopathic treatment, based on his observation of nature and the process of disease and cure. The fundamental principles of homeopathy have remained constant and, when applied according to the identified rules the treatment based on the law of similars (*similia similibus curentur*), the confirmation of its tenets confirms its validity within the natural law.

G) HOMEOPATHS ARE UNETHICAL, THEY CHEAT THEIR PATIENTS.

This statement could be considered in many countries, according to the penal laws, as libel, or defamation; at the least, it is an insult. All homeopathic practitioners spend hundreds of hours studying homeopathy, going to conferences, and purchasing specialized software, that costs thousands of dollars, to be able to provide to patients the care they deserve. These expenses are on top of the usual expenses to keep up to date with current medical advances, as it is often required to maintain a valid professional license. These added costs are usually not recoverable because a consultation with a homeopath is often no more, and often less, expensive than with conventional colleagues. Besides, considering that only 40% of medical treatments have been verified, that many conventional physicians have been unduly influenced by pharmaceutical reps, and that much research published in medical journals is funded by the same corporations, there perhaps even more room to charge conventional medicine of unethical behavior. (Gotzsche, 2013)

H) HOMEOPATHY AND MEDICINE:

1. Homeopathy and Allopathy are two different medicines and the former can't be considered as Medicine.

Medicine is one; Homeopathy (therapeutic, homeopathic medicines) and Allopathic Medicine (conventional medicine, medicines) are two therapeutic methods subsumed within Medicine. Homeopathy arose from within the medicine of the time. The initial medicines were brought into the new paradigm by Hahnemann from the substances used then. For several years there was an overlap between these modalities, particularly between herbal medicine and homeopathy, among some practitioners yet without a clear distinction of their particular utility. Today, many physicians do not call themselves homeopaths but medical doctors who happen to use homeopathy as a primary modality of treatment, using conventional medicines when it appropriate and necessary. The existence of both modalities is a sociological fact and there a possibility that patients can be treated with benefit using both. There are economic studies where it is asserted that the combined use of both methods is beneficial for the public health. Homeopathy and allopathy are no different than an orthopedist prescribing physical therapy or steroid injections prior to performing surgery; they are modalities of treatment used according to the patient's needs.

Since homeopathy has its own procedures for a homeopathic diagnosis and treatment of disease, which is not exclusive of conventional evaluation, patho-diagnosis and treatment, and is practiced by licensed health practitioners, it is medicine. Furthermore, it has a specific procedure for the clinical monitoring of the patient, the prognosis and the therapeutic possibilities, always able to dovetail with necessary conventional approaches, both diagnostic and therapeutic, and is able of integrate the most current conventional medical research.

2. Homeopathy is not Alternative or Complementary Medicine

In 1978 homeopathic medicine was recognized by the World Health Organization as Traditional Medicine. At that time, more than one hundred and fifty years had passed since homeopathy's inception, so it was considered a traditional medicine since any medical treatment is considered so, if it has been in use, and is still used, after 50 years. In 2002, the World Health Organization included Homeopathy, together with other modalities, within the definition of Traditional Medicine, below the epigraph of Complementary and Alternative Medicine. Currently, homeopathic medicine is categorized within rubric of 'Traditional & Complementary/Alternative Medicine' by the WHO, and sees its role in healthcare into the future, since it being used by a significant number of practitioners around the world and has a demand from patients. (WHO, 2013)

Through the course of time millions of people around the world and their treating practitioners have used homeopathy as an initial or complementary treatment with success. The range of this utilization and data of outcomes and cost effectiveness is still being determined.

3. It cannot be applied on Medicine, Veterinary or Agriculture.

As there are thousands of medical doctors practicing homeopathy, there are also hundreds of veterinary doctors using it in animals, it is applied to domestic animals (small ones) and also to farm animals. There are some impressive studies performed in animals, showing that it can be helpful and cost effective, without the toxic effects of conventional medicines. Besides, homeopathy is the only medical field in which the medicines have been tested in humans to treat animals. Homeopathic vets have been able to extrapolate the medicine pictures in human medicine to treat animals with similar pathologies with success. (AVH, 1997)

Similarly, much work has been advanced in the use of homeopathy in agriculture. There have been important experiences in Germany, Brazil and Cuba, as well as other countries. (Das Kaviraj, 2015)

I. HOMEOPATHY AND SIDE EFFECTS:

1. Homeopathic medicines could be dangerous and poison patients.

One crucial aspect of the homeopathic treatment is that it cannot be dangerous for the human health, as long as the dosages, of potentially toxic substances, are not material and the correct treatment protocol is followed. This has been researched many times and it has always proved the same result. There is any reliable study that proves that Homeopathy could be dangerous for humans, neither animals nor plants. This has been recognized by several Healthcare services of the whole world.

Homeopathy cannot poison patients or healthy people because they are much diluted and they lose their toxic characteristic. There are not neither legal notifications in any country that prove any real toxicity, nor any have been reported. No notification has been issued by the World Health Organization. In some cases, minor discomforts, of a functional type, like new sensations, have been reported, which disappear once the patient finishes the treatment. The reiterative assumption that Homeopathy is dangerous it is absolutely defamatory, and in some countries it would have legal implications.

2. Homeopathic medicines could present medicament interactions.

Homeopathic medicines do not interact with conventional medicines. Moreover, it can be proved that when a patient recovers he/she can leave the medicines progressively.

3. Homeopathic medicines could cause serious side effects.

Homeopathic medicines do not often have side effects and they are very safety. Some patients can experience a minor discomfort after taking the medicine; this would disappear once they leave the medicine.

J) HOMEOPATHY, INSTITUTIONS AND PUBLIC HEALTH:

1. Homeopathic medicines are very expensive.

The average cost of homeopathic medicines is very inexpensive because they are not synthesized but commonly available raw materials are used, or such small proportions are needed, for the manufacture of medicines. Most of these compounds have been in use for centuries, so their safety has been required expensive research. (Bornhoft & Mathiessen, 2011)

2. The Allocation of public funds to Homeopathy is a waste

There are several cost/benefit analyses that demonstrate that the relation is in favor of Homeopathy. Homeopathy could be a vital tool for benefiting the sustainability of the public health care systems, by decreasing medicine costs, decreasing the number of compounds often used in patients, and consequently, this will also decrease costly iatrogenic diseases and complications.

3. Homeopathy is a rogue treatment without official approval

Homeopathy has obtained important institutional recognition in many countries around the world, for example, in Europe: Germany, United Kingdom, Switzerland, France and Austria. Also in Italy, Spain, Belgium and Greece, even such institutional support is not across the board.

- In America: USA, Canada, Mexico, Colombia, Cuba, Brazil, Ecuador and Costa Rica.
- In Asia: India, Pakistan.
- In Africa: South Africa; also in Australia.

In some instances as noted above, homeopathy has been integrated within national healthcare systems.

4. Homeopathic education has no institutional support of structure.

Homeopathy has been recognized by more than 100 universities all over the world, as well as by the World Health Organization and the Ministries of Education and Health from about thirty countries.

Through the years homeopathic organizations have organized hundreds of congresses, conferences, symposia, and workshops, many of them offering Continuing Medical Educational certificated (CME) endorsed by conventional medical institutions. Around the world, there have been courses on homeopathy sponsored by medical universities. There millions of publications, articles, books, magazines and even graduate school (PhD) thesis on homeopathy. Currently, there is also FRAMEWORK, from the International Medical League; and the works of the CCRR (Central Council for Research in Homeopathy), in India, which is a governmental agency.

5. Homeopathy has no place in public health systems

Apart from the ones that have been pointed out, it is important to highlight the World Health Association (1978, 2002), the European Parliament and the European Council; also the Andean Pact, have recognized homeopathy are important in healthcare delivery.

References

- Ammon, K., Gasser, R., & Et_al. (2011). Cost-Efectiveness in Homeopathy. In G. Bornhoft, & P. E. Mathiessen, *Homeopathy in Healthcare-Effectiveness, Appropriateness, Safety, Costs* (pp. 163-192). Berlin-Heidelberg: Springer-Medizin.
- Astin, J. (1998). Why Patients Use Alternative Medicine. Results of a National Study. *Journal of the American Medical Association*, 279 S., 1548-1553.
- AVH, A. o. (1997). *Academy of Veterinary Homeopathy*. Retrieved from Academy of Veterivary Homeopathy: <http://theavh.org/>
- Avina RL, S. L. (1978, April). Why patients choose homeopathy (Commentary). *West J Med*, 128, 366-369.
- Bell, I., & Koithan, M. (2006). Models for the study of whole systems. *Integrative Cancer Therapies*, 5, 293-307.
- Bell, I., & Koithan, M. (2012). A model for homeopathic remedy effects: low dose nanoparticles, allostatic cross-adaptation, and time-dependent sensitization in a complex adaptive system. 12, 191. *BMC Complement Altern Med*, 191- 237.
- Bellavite, P., & Signorini, A. (2002). *The Emerging Science of Homeopathy-Complexity, Biodynamics, and Nanopharmacology*, 2nd Ed. Berkeley, CA: North Atlantic Books.
- Benedetti, F. (2009). *Placebo Effects-Understanding the Mechanisms in Health and Disease*. New York: Oxford University Press.
- Boericke, G. (1965, Jan-Feb). Tranquilizing Drugs used Homeopathically and Homeopathic Tranquilizers. *Journal of the American Institute of Homeopathy*, 20-23.
- Boissel, J., Cucherat, M., Haugh, M., & Gauthier, E. (1996). Critical literature review on the effectiveness of homeopathy: overview of data from homeopathic medicine trials. In *Report of the Commission of the European Community*. Homeopathic Medicine Research Group,.
- Bornhoft, G., & Mathiessen, P. F. (2011). *Homeopathy in Healthcare-Effectiveness, Appropriateness, Safety, Costs*. Berlin-Heidelberg, Germany: Springer Verlag.
- Calabrese, E. (2013). Hormetic Mechanisms-Review. *Critical Reviews in Pharmacology*, 43(7), 580-606.

- Calabrese, E. (2013). Hormetic Mechanisms-Review. *Critical Reviews in Pharmacology*, 43(7), 580-606.
- Calabrese, E., & Blain, R. (2004). The hormesis database: An overview. *Toxicology and Applied Pharmacology*, 202(3), 289-300.
- Calabrese, E., & Jonas, W. (2010). Hormesis and Homeopathy. *Biological Effects of Low Level Exposures Newsletter*, 16(1), 1-55.
- Chikramane, P., Kalita, D., Suresh, A., Kane, S., & Bellare, J. (2012). Why Extreme Dilutions Reach Non-zero Asymptotes: A Nano-particulate Hypothesis Based on Froth Flotation. *Langmuir-American Medical Society*, 28, 15864-15875.
- Coulter, H. (1982). *Divided Legacy, Vol.3: The Conflict Between Homeopathy and the American Medical Association, 2nd Ed.* Richmond, CA: North Atlantic Books.
- Cucherat, M., Haugh, M., Gooch, & Boissel, J. (2000). Evidence of clinical efficacy of homeopathy. A meta-analysis of clinical trials. *EurJ Clin Pharmacol*, 56, 27-33.
- Dantas, F., Fisher, P., Walach, H., Wieland, F., Rastogi, P., Teixeira, H., & Et_Al. (2007). A Systematic Review of the Quality of Homeopathic Pathogenetic Trials Published from 1945 to 1995. *Homeopathy*, 96, 4-16.
- Das Kaviraj, V. (2015). *Homeopathy for Farm and Garden-The Homeopathic Treatment of Plants - 4th revised edition.* Kandern, Germany: Narayana Verlag.
- Davidson, J. (2014). *A Century of Homeopaths.* New York: Springer.
- Davidson, J., & Jonas, W. (2016, Aug 22). Individualized Homeopathy; A Consideration of Its Relationship to Psychotherapy. *The Journal of Alternative and Complementary Medicine*, 22(8), 594-598.
- ECH, E. C. (n.d.). *ECH-Homeopathic Medicines.* Retrieved May 29, 2017, from European Commission for Homeopathy: <http://homeopathyeuropa.org/medicines/>
- Eizayaga, J. (2013). The Lancet y el anunciado fin de la homeopatía: revisión crítica de la publicación de Shang et al (2005) y los artículos relacionados que le siguieron. *Revista De Homeopatía*, 76(1/2), 39-60.
- Enserink, M. (2010, DECEMBER 24). French Nobelist Escapes 'Intellectual Terror' to Pursue Radical Ideas in China. *Science*, 330, 1732.
- Fisher, P. (2006). *Scientific research on homeopathic medicine; Presentation, Joint American Homeopathic Conference.* . Retrieved from American Institute of Homeopathy-Guide to Research: http://homeopathyusa.org/uploads/Research/Homeopathy_Efficacy.pdf
- Fisher, P. (2016). Is quantum entanglement in homeopathy a reality? *Homeopathy*, 105, 209-10. *Homeopathy*, 105, 209-210.

- Frass, M., Schuster, E., & Et-Al. (2005). BIAS IN THE TRIAL AND REPORTING OF TRIALS OF HOMEOPATHY: A FUNDAMENTAL BREAKDOWN IN PEER REVIEW AND STANDARDS? *The Journal of Alternative and Complementary Medicine*, 11(5), 780-782.
- Glasziou, P., Chalmers, I., Rawlins, M., & Mc Culloch, P. (2007). When are randomised trials unnecessary? Picking signal from noise. *British Medical Journal*, 334, 349-351.
- Gotzsche, P. C. (2013). *Deadly Medicines and Organized Crime*. London: Radcliffe Publishing.
- Gula, R. (2002). *Non-Sense-A Handbook of Logial Fallacies*. Mount Jackson, VA: Axios Press.
- Haehl, R. (1922). *Samuel Hahnemann-His Life and Work*. London: Homeopathic Publishing Company.
- Hahnemann, S. (1835/1898). *Chronic Diseases-Their peculiar nature and their homeopathic cure*. Philadelphia: Boericke & Tafel.
- Hahnemann, S. (1842/1996). *Organon of the Medical Art, Ed. Wenda Brewster O'Reilly*. Palo Alto, CA, USA: Birdcage Press.
- Hahnemann, S. (1846). *Materia Medica Pura (Vol.1-4)*. New York: William Radde.
- Harrington, E. (. (1997). *The Placebo Effect: an Interdisciplinary Exploration*. Cambridge, MA: Harvard University Press.
- HPUS. (2016). *The Homœopathic Pharmacopœia of the United States*. Retrieved from The Homœopathic Pharmacopœia of the United States: <http://www.hpus.com/index-of-the-hpus.php>
- Indian Pharmacopoeia Commission, I. (n.d.). *Indian Pharmacopoeia Commission*. Retrieved May 29, 2017, from Indian Pharmacopoeia Commission: <http://www.ipc.nic.in/>
- Jonas, W. (2005). Building an Evidence House: Challenges and Solutions to Reseach in Complementary and Alternative Medicine. *Forschende Komplementarmedizin und klassische Naturheilkunde*, 12, 159-167.
- Josephson, B. (1997, November 1). Letters: Molecule Memories. *New Scientist*.
- Kennedy, D., Seneff, S., Davidson, R., JW, O. J., & Haley, B. (2016). Environmental Toxicants and Infant Mortality in the USA. *Peertechz J Enviriol Res Dev*, 1(1), 36-61.
- Kiene, H., Kienle, G., & von Schön-Angerer, T. (2005). Failure to Exclude False Negative Bias: A Fundamental Flaw in the Trial of Shang et al. *The Journal of Alternative and Complementary Medicine*, 11(5), 783-783.
- Kleijnen, J., Knipschild, P., & ter Riet, G. (1991). Clinical Trials of Homeopathy. *British Medical Journal*, 302(6782), 316-323.
- Kliff, S. (2014, January 24). Surprise! We don't know if half our medical treatments work. *The Washington Post*.

- Kuzniar, A. (2017). *The Birth of Homeopathy out of the Spirit of Romanticism*. U of Toronto Press.
- Leaf, C. (2013, July 13). Do Clinical Trials Work? *New York Times*.
- Linde, K., & et_al. (1997). Are the clinical effects of homeopathy placebo effects? A meta-analysis of placebo-controlled trials. *Lancet*, 359 (9081), 834-843.
- LMHI, L. M. (2015). *Scientific Framework of Homeopathy-Evidence Based Homeopathy*. Retrieved from LMHI: <http://www.lmhi.org/downloads/articles/lmhi-sc-framework-2014-june-15-2015.pdf>
- Manzalini, A., & Galeazo, B. (2019). Explaining Homeopathy with Quantum Electrodynamics. *Homeopathy*, 108, 169-176.
- Marian, F., Joost, K., Saini, K., Ammon, K., Thurneysen, A., & Busato, A. (2008). Patient satisfaction and side effects in primary care: An observational study comparing homeopathy and conventional medicine. *BMC Complementary and Alternative Medicine* 2008, 8:52, 8(52).
- Möllinger, H., Schneider, R., & Walach, H. (2009). Homeopathic Pathogenetic Trials Produce Specific Symptoms Different from Placebo. *Forsch Komplementmed*, 16, 105-110.
- Montagnier, Aissa, A., & Et-Al. (2009). Electromagnetic Signals Are Produced by Aqueous Nanostructures Derived from Bacterial DNA Sequences. *Interdiscip Sci Comput Life Sci*, 1(2), 81-90.
- Montaigner, Giudice, D., Aissa, & et-al. (2014, December 27). Transduction of DNA information through water and electromagnetic waves. <https://arxiv.org/>, 1-10.
- Niurka Meneses, I. w. (2018, November). Demostrada Científicamente como funciona la Homeopatía! *Discovery Salud*(220).
- Office of Technology Assessment, O. (1978). *Assessing the Efficacy and Safety of Medical Technologies*. Congress of the United States.
- Roy, R. (2007, December 19). 'Homeophobia' must not be tolerated. *The Guardian*.
- Roy, R., Tiller, W., Bell, I., & Hoover, M. (2005). The structure of liquid water; novel insights from materials research; potential relevance to homeopathy. *Materials Research Innovations*. 9(4), 98-103.
- Saine, A. (2013, May 20). *Dr. Andre Saine Debates Famous Skeptics in U.S and Canada*. Retrieved June 4, 2017, from The Canadian Academy of Homeopathy: http://homeopathy.ca/debates_2013-03-22_SummaryResponseFromAndreSaine.shtml
- Schiff, M. (1995). *The Memory of Water-Homeopathy and the Battle of Ideas in the New Science*. London: Harper Collins.

- Schmidt, B., Tucker, B., & Davis, T. (2015, March 8). *The Dark Stuff of our Universe*. Retrieved June 5, 2017, from NOVA-Australian Academy of Science: <http://www.nova.org.au/space-time/dark-stuff-our-universe>
- Shang, A., Huwiler-Müntener, K., Nartey, L., & al., e. (2005). Are the clinical effects of homeopathy placebo effects? Comparative study of placebo-controlled trials of homoeopathy and allopathy. *Lancet*, *366*, 726-732.
- Shapiro, A., & Shapiro, E. (1997). *The Powerful Placebo; from Ancient Priest to Modern Physician*. Baltimore, MD: Johns Hopkins University Press.
- Sherr, J. (1994). *The Dynamics and Methodology of Homeopathic Provings, 2nd Ed.* Malvern, UK: Dynamic Books.
- Swanson, C. (2016). *Life Force, The Scientific Basis: Breakthrough Physics and Energy Medicine, Healing, Chi and Quantum Consciousness, 3rd Ed.* . Tucson, AR: Poseidia Press.
- Thompson, T. &. (2005). Understanding Placebo Effects in Homeopathic Clinical Trials. *The Journal of Alternative and Complementary Medicine*, *11*(5), 784.
- WALACH, H., JONAS, W., IVES, J., & et_al. (2005). Research on Homeopathy: State of the Art. *HE JOURNAL OF ALTERNATIVE AND COMPLEMENTARY MEDICINE*, *11*(5), 813-829.
- Walach, H., Möllinger, H., Sherr, J., & Schneider, R. (2008). Homeopathic pathogenetic trials produce more specific than non-specific symptoms: results from two double-blind placebo controlled trials. *Journal of Psychopharmacology*, *22*(5), 543-552.
- Weatherley-Jones, E., Thompson, E., & Thomas, K. (2004). The placebo-controlled trial as a test of complementary and alternative medicine: observations from research experience of individualised homeopathic treatment. *Homeopathy*, *93*, 186-189.
- WHO, W. H. (2013). *WHO Traditional Medicine Strategy-2014-2023*. Geneva: World Health Organization.