

## Opinion

# Homeopathy, Ritual and Magic

Touraj Nayernouri, MD<sup>1</sup>\*<sup>1</sup>Academy of Medical Sciences of the I.R. of Iran, Tehran, Iran

## Introduction

The practice of medicine today is divided into 2 major groups; what is regarded on the one hand as 'scientific' or 'evidence-based' medicine and on the other hand a disparate group known as 'alternative medical practices.' Modern or 'scientific' medicine, the origins of which date from early 19th century C.E., has many shortcomings and is not perfect, but seems to be the most effective form of medical practice we have today. I will discuss this in a future article.

In this essay, I aim to discuss homeopathy as a form of alternative medical practice, which seems to fall short of a rational basis, and will suggest some reasons for its popularity.

## Homeopathy

In 1796, Samuel Hahnemann, a German doctor, created a system of medicine known as homeopathy, based on the claim that if a substance causes, in healthy persons, the symptoms which occur in a disease, then that substance would cure those symptoms in sick people.

Hahnemann believed that the underlying causes of all diseases were phenomena which he termed *miasms*, and that his homeopathic preparations cured diseases by abolishing the *miasms* which were the causative factors of various diseases.

The word 'miasma' comes from ancient Greek meaning 'pollution' and denotes foul smelling air emanating from 'rotting organic matter'<sup>1</sup> as a cause of diseases such as cholera, the plague and malaria. Its history goes back to ancient Chinese and Indian beliefs as well as the middle ages in Europe. In fact, the word 'malaria' which means 'bad air' originates from medieval Italian.<sup>2</sup>

Of course, these theories predated the 'germ theory' developed by Louis Pasteur in the 1860s and by Robert Koch in the 1870s which prevailed as a cause of infectious diseases.

While translating a medical treatise by the Scottish physician, William Cullen, into German, Hahnemann came across a theory concerning the use of 'cinchona' bark for curing malaria and so he ingested some of the

bark and subsequently experienced fever, shivering and joint pain: symptoms similar to those of malaria. This experience convinced Hahnemann of the 'law of similars' that had been proposed by ancient physicians and started him on the development of his system of homeopathy; the word formed from the Greek *homoios*=like and *pathos*=suffering.

Although other investigators had ingested cinchona bark without experiencing the effects that Hahnemann had described, this fact did not deter Hahnemann in his quest. Of course much later, it was discovered that the cinchona bark contained quinine which has an antimalarial effect by killing the Plasmodium parasite.

The homeopathic preparations which Hahnemann invented were chosen substances that were diluted repeatedly in alcohol or distilled water and the containing vessel was struck against an elastic material (commonly a leather bound book) after each dilution.

The substances selected by homeopaths are contained in reference books known as *repertories* whose actions have been studied by a method known as *provings*.

## Provings

Hahnemann began a series of experiments to determine what effects various substances produced in healthy humans; a procedure which later became known as "homeopathic proving." The experimental subjects ingested various substances chosen by Hahnemann and recorded all of their symptoms and the conditions under which the symptoms appeared. He published a collection of 65 preparations in his book, '*Materia Medica Pura*' in 1810.

Since then, homeopathic provings have amassed a wide range of remedial preparations. In recent times, the method involves a group of up to 20 volunteers who come together and take six doses of the remedy being 'proved,' at various dilutions over 2 days, keeping a diary of the physical, mental and emotional sensations as well as dreams experienced during this period. Then, the 'master prover' will collate this information forming a picture of the effects of the new remedy which is written

\*Corresponding Author: Touraj Nayernouri MD, Academy of Medical Sciences of the I.R. of Iran, Tehran, Iran. Email: [tnayernouri@yahoo.co.uk](mailto:tnayernouri@yahoo.co.uk)

in a 'repertory' for future reference.

Homeopathic practitioners use 2 types of reference books: the *Materia Medica* and *Repertories*, to diagnose and treat their patient's symptoms.

The *Homeopathic Materia Medica* is a collection of 'drug pictures' of the symptom patterns associated with individual preparations and is used to prescribe a particular preparation for patients with similar symptoms, which has been culled from 'proving' experiments as listed in the 'repertories'.

The substances used in homeopathy preparations can range from animal, plant, mineral and synthetic derivatives and are given Latin-sounding names such as *arsenicum album* (arsenic oxide), *natrum muriaticum* (sodium chloride or table salt), *opium*, and *thyroinum* (thyroid hormone).

### Miasms

It must be stressed, however, that originally Hahnemann envisaged only three types of 'miasmas' as the cause of all chronic diseases: Psora (the itch), Syphilis (and other venereal diseases) and Sycosis (fig-wart disease).

At this juncture, I feel compelled to quote several passages from '*Classical Homeopathy*' written recently by Ewald Stöteler of the Hahnemann Homeopathy Foundation in the Netherlands.<sup>3</sup>

Stöteler writes that the kinds of illnesses are "acute, chronic and chronic miasmatic diseases, based on transmittable hereditary miasmatic tendencies."

He further describes that "The human constitution expresses itself in the physical condition, and the physical body consists, besides water, mainly of minerals. When the vital reaction of the patient is blocked by either an improper endured disease process in the patient's own biography or by pathological tendencies through heredity of ancestors, the remedy can be found in *nosode*."

I must admit that this statement defies comprehension by any standard of medical practice or logic.

*Nosode* is a homeopathic therapy that could be described as an 'oral vaccine,' derived from pathological substances including "tissue, blood, pus, mucus, sweat, urine or feces from a diseased human or animal."<sup>4</sup>

It must be mentioned that not all practicing homeopaths accept the 'nosode' therapy.

Before I leave Ewald Stöteler, I will quote a further passage which (disregarding the English), would leave any intelligent reader bewildered:

"When a child suffers from an acute illness, it demonstrates Pulsatilla, Belladonna or Aconitum. When it falls from the stairs, the Arnica picture develops, and when it gets stung, Lachesis or Apis. It is apparently the case that a child with a Calcarea constitution can show a Belladonna picture in an acute stage and can be born with

a tuberculinic habitus. The Calcarea constitution is based on a TB foundation in those cases.... What develops is a three-dimensional picture where it is possible to look back and treat until the ancestors. This better be the case, otherwise a child with hereditary taint can never have a lasting cure."

Of course, Hahnemann's *miasms* theory is not only controversial, but is considered simplistic in modern times, in view of the many sorts of diseases recognized today.<sup>5</sup>

### Homeopathic Preparations

Hahnemann found that many of his undiluted medications caused dangerous reactions and were toxic and so he instigated that they should be given at the lowest possible doses. He also found that vigorous shaking of his medications and striking of the containing vessels on an elastic surface, a process translated as 'succussion,' increased the potency of the medication as well as decreasing the unwanted side effects.

The serial dilution process and the principle of 'succussion' of the homeopathic medication have become the '*sine qua non*' or the 'indispensable' part of homeopathic philosophy as well as the preparation of its medications. This process of dilution and succussion is termed "dynamization" or "potentiation" by homeopaths.

The most common form of homeopathic dilution is the "C scale" or the "centesimal" scale, originally used by Hahnemann, whereby a substance is diluted by a factor of 100 at each stage. This process involves diluting a substance in the solvent, usually water or alcohol, the container is then "succussed" a number of times and then a unit of the solution is diluted in a hundred units of the solvent; this gives a "1 C" dilution. The process is then repeated by diluting one unit of the '1 C' dilution in another 100 units of the solvent and succussed again, resulting in a "2 C" dilution; that is one part of the original substance in 10 000 parts of the solvent. By the time a "6 C" solution has been achieved, there is one part of the original substance in one trillion (1/1 000 000 000 000) units of the solvent. A rather common dilution for a homeopathic preparation is '30 C' dilution which means that there is one part of the original substance in 10<sup>60</sup> parts of the solvent.

Of course Hahnemann lived in days when the concept of the 'atom' or a 'molecule' was not recognized and Avogadro had not yet estimated the number of atoms of a substance in a mole of solution.

According to physical calculations today, it can be estimated that at a dilution of '12 C,' there may perhaps be 'one molecule' of the original substance left in the homeopathic preparation, but certainly not at any higher dilutions.

Of course, it is maintained in homeopathic practice that the process of dilution and succussion has a “dynamization” or “potentization” effect on the preparation which is beyond the presence of the active ingredient.

When it was pointed out by physicists that a solution of ‘12 C’ or higher could not possibly contain one atom or molecule of the original ingredient, the homeopathic practitioners remained undeterred. They maintained that the process of dilution and succussion altered the configuration of the solvent, (the water or the alcohol), in such a way that the molecules of the solvent retained “the memory” of the structure of the original substance, and it was this ‘structural memory’ which was the essence of the active ingredient of the homeopathic preparation.

Surprisingly, science had lent credence to such a scenario which was the central tenet of homeopathy. In 1988, an article had appeared in *Nature*, one of the most prestigious science magazines, stating that “water can remember for extended periods of time, patterns imposed upon it by the environment or by solute molecules.”<sup>6</sup> Another and an older misconception was that “long-range order across hundreds or even thousands of molecular layers can exist in liquid water”; what was termed as “polymerized water.”<sup>7</sup>

In recent years, however, both these concepts; ‘memory of water’ and ‘polymerized water,’ have been shown to be incorrect. In 2011, Stiofkin et al, writing in *Nature*, showed that it is only in the surface molecular layer of water, which is 0.3 nm thick, that the structure of water molecules is different from the structure of the rest of the liquid and that there is no long range patterning in liquid water.<sup>8,9</sup>

This is where the strength of science and scientific inquiry lies. Old theories can be re-examined and ‘Phoenix’ like, replaced by more powerful explanatory ideas. Non-scientific concepts, like homeopathy attempt to cling to ancient irrational and magical myths and discard progressive evidence.

### Does Homeopathy Work?

Homeopathy became very popular in Europe and the United States in the 19th century. One of the reasons for its popularity was that during the cholera epidemics of that century, more people were dying from multiple blood lettings and purgings, which were the standard medical treatments of that time, than those treated with homeopathic medications which were harmless even if ineffective.

By the end of the 19<sup>th</sup> century, however, homeopathy lost its popularity, and by early 20<sup>th</sup> century, when modern medical theory and practice were gaining ground in prevention and treatment of infectious diseases, most

homeopathic institutions were closed and its practice discarded.

It seemed that improved urban sanitation and antibiotics had nailed the homeopathic coffin.

Despite the fact that many major international and governmental organizations, including the World Health Organization, the Australian National Health and Medical Research Council, the United Kingdom’s House of Commons Science and Technology Committee as well as the Swiss Federal Health Office have each concluded that homeopathy is no more effective than placebo, yet since the 1970s, homeopathy has made a significant comeback. The sales of over-the-counter homeopathic medicines reached nearly 3 billion dollars in 2007, as estimated by the Food and Drug Administration (FDA). The market for such unregulated medications, similar to that of vitamins and other ‘food supplements’ is obviously a lucrative market.

There have been many publications of clinical trials indicating positive results for homeopathic medications, but most have been criticized on grounds of methodological flaws and publication bias.

In a report prepared for the Australian NHMRC in 2013 on the ‘Effectiveness of Homeopathy for Clinical Conditions,’ a total of 57 systematic reviews were examined regarding the effectiveness of homeopathy as a treatment for several clinical conditions in humans. The conclusion was that “The available evidence is not compelling and fails to demonstrate that homeopathy is an effective treatment for any of the reported clinical conditions in humans”.<sup>10</sup>

I do not intend to delve deeply into the trials (and tribulations) of homeopathic research, as my main intention in this article is to attempt to give a reasonable explanation for its resurgent popularity despite its unscientific and irrational presupposition and mechanisms of action.

### How Does Homeopathy Work?

There are illnesses that are self-limiting, like the common cold, or conditions that are recurring and cyclical like hay fever (allergic rhinitis) for which treatments are symptomatic until the condition subsides by itself. There are more serious diseases such as Multiple Sclerosis or Irritable Bowel syndrome, where symptoms wax and wane; that is, they have periods of exacerbation interspersed with remissions when symptoms diminish irrespective of treatment.

Problems like Trigeminal Neuralgia can be triggered by particular stimuli, such as cold water or wind in this particular case where the pain can subside if the triggering stimuli are avoided. Migraine is another painful condition which can be triggered by external stimuli such

as intense light or aromas, especially during premenstrual water retention. Other painful conditions such as neuropathic pain, post amputation phantom limb pain or chronic and recurrent back and sciatic pains all have periods of amelioration and exacerbation. Any form of treatment that is instituted just before the period of natural amelioration of the condition can be claimed to have had a positive effect.

All these and many other conditions are difficult to treat whether by conventional or alternative therapies.

There is, however, an element of *magic* which can be relied upon until our conventional and scientific medical knowledge can find definitive remedies.

What I mean by *magic* is the ability that the human brain has acquired during its evolution to deal with the pressing environmental problems posed by a hunter-gatherer mode of survival in the African savannah within the past few million years. Our understanding of the external world required interpretational capacities limited to such an existence and tinted with subjective emotional pressures leading to animistic conjectures based upon intuition. The rational and logical mode of thinking is a capacity that we have acquired only in the last few thousand years and it is only operative within the minds of a minority of the human population, yet that primitive type of reasoning remains the *default mode* of our cognitive processing mechanism despite our recently acquired rationality.

Two of such intuitive characteristics that we have acquired and inherited are trust and suspicion. In primitive societies, it was essential for the cohesion of the tribe to learn who to trust as a friend or leader and who to regard with suspicion as a foe.

Another human mental characteristic is suggestibility. The human mind is open to suggestion by those we trust and closed to those whom we consider as foe. Our thoughts and emotions as well as our beliefs and actions can be influenced and changed by those we trust.

So, how does this line of reasoning reflect our attitude towards conventional or alternative medicine? What is the relevance?

In the first place, the patient's trust towards his/her caregiver is of paramount importance, whether the caregiver is a Shaman, a witch doctor, a homeopath or a conventional physician; it is the trust which influences the *magical* outcome in the first instance.

It is unfortunate that in the modern day work place, physicians may be overworked and devote little time to listen to the woes of the patient and rely so much on laboratory tests and imaging techniques. This mode of practice does not engender much trust.

The methods of homeopathic practice, however, are different and may be an essence of its popularity.

### The Ritual

A typical first Homeopathic consultation can last one to 2 hours. A detailed history of the patient's illnesses as well as lifestyle, habits, personality and family history, going back several generations is noted carefully.<sup>11</sup> Then, there is a detailed search in the 2 reference books, the *Materia Medica* and the *Repertories* to match the patient's symptoms to a particular homeopathic diagnosis and then to prescribe the exact homeopathic remedy for such a condition.

This detailed and ritualized process has already gained the patient's attention and *trust*. He or she has been primed for the *magic*.

### The Magic

The magic is otherwise known as the *Placebo Effect*. 'Placebo' is a Latin word meaning 'I shall please' and is a substance or treatment, supposedly with no active therapeutic effect. It is defined as an inert, pharmacologically inactive substance or procedure which is usually used as a control to substantiate the effects of a new therapy or procedure as an efficacious remedy. It is assumed that the placebo has a psychologically beneficial effect without any true remedial consequence.

It is standard procedure in modern pharmaceutical clinical trials to show that any new medicinal substance has a statistically more significant benefit for a particular ailment than the inert placebo, before the new treatment can be approved and marketed. What is of interest is that in many clinical trials, the Placebo has a beneficial effect of up to 30% or more and so the novel treatment must exceed this percentage before it is concluded to be effective.

And so, it seems that the inert placebo does have some remedial effect, but the question is what might be the mechanism of this magic?

### Suggestibility

As mentioned above, suggestibility is another of those evolutionarily acquired human mental characteristics, the mechanisms of which remain unknown to date. The mechanisms of advertising and hypnosis are two other well-known examples, and the 'herd instinct', wherein people adhere to an ideal and follow the leader; political, religious or just the fashions, are other examples. Humans and other primates tend to copy and mirror the actions of their parents and their peers; a process which helps learning as well as social cohesion, and may have been evolutionarily selected for survival of the species.

This phenomenon of suggestibility may be at the root of this placebo effect and the remedial capacity of alternative medical treatments.

Pain and depression are two of the commonest

ailments which are difficult to treat by any means and are amenable to improvement by placebos. A study in 2005 at the University of Michigan at Ann Arbor on 14 healthy young men showed that a routine saline drip, which was purportedly claimed to be a novel analgesic, significantly reduced pain caused by the injection of a painful substance in their jaw muscles. Positron Emission Tomography of their brains during the experiment showed increased release of endogenous endorphins when the subjects were told that they were being given the novel analgesic. Endogenous Endorphins (morphine like neuropeptides) are normally released by various parts of the nervous system, including the pituitary gland, during stress and pain to reduce the effects of these conditions, as well as causing euphoria.<sup>12</sup>

It has been shown experimentally that during stereotactical operations of the brain for Parkinson's disease, during which the patient is conscious and able to respond, recordings of neuronal discharge rates of the subthalamic ganglia of the brain, which are recorded during surgery, can be altered whether given apomorphine (which reduces rigidity and tremor in Parkinsonian patients) or a placebo. Prior to the operation, the patients were given apomorphine, which reduced the rigidity and the tremor in the limbs of the patients. During the operation, while the activity of the cells of the subthalamic nuclei were being recorded, the patients were told that they were being injected with apomorphine, whereas they were being injected with normal saline. Not only did the patients report the easing of their symptoms, but the firing rates of their basal ganglion cells were also reduced. In other words, the placebo in fact altered the activity of their brain cells.<sup>13</sup>

This is the *magic*.

## Conclusion

The human mind works in mysterious ways of which we still remain ignorant at present.

What we do know is that there are neurons that secrete opioids which are effective in reducing pain and can cause euphoria. We also know that ritual, suggestibility and magic are still with us from those many years of evolutionary change and perhaps, some day in the

future, we might understand the mechanisms of their actions, but today, we must admit the machinations of their effects without understanding. The placebo effect is a magical reality underlying so much of our medical remedies, scientific or alternative. The hope is that science and logic will prevail and we might be able to discard superstitious alternatives and a rational system of information processing might replace our evolutionarily acquired suggestibility and its irrational consequences.

## Conflict of Interest Disclosures

The authors have no conflicts of interest.

## References

1. The Oxford English Dictionary website. <http://www.oed.com/>.
2. Miasma theory. Wikipedia website. [https://en.wikipedia.org/wiki/Miasma\\_theory](https://en.wikipedia.org/wiki/Miasma_theory).
3. Classical Homeopathy website. <http://www.classicalhomeopathy.eu/>.
4. Nosode. RationalWiki website. <http://rationalwiki.org/wiki/Nosode>.
5. Shelton JW. Homeopathy: How it Really Works. Amherst, New York: Prometheus Books; 2004.
6. Davenas E, Beauvais F, Amara J, Oberbaum M, Robinzon B, Miadonna A, et al. Human basophil degranulation triggered by very dilute antiserum against IgE. *Nature*. 1988;333(6176):816-8. doi: 10.1038/333816a0.
7. Deryagin BV, Fedyakin NN. *Dokl Akad Nauk*. 1962; SSSR 147:403-5.
8. Jungwirth P. Physical chemistry: Water's wafer-thin surface. *Nature*. 2011;474(7350):168-9. doi: 10.1038/474168a.
9. Stiopkin IV, Weeraman C, Pieniazek PA, Shalhout FY, Skinner JL, Benderskii AV. Hydrogen bonding at the water surface revealed by isotopic dilution spectroscopy. *Nature*. 2011;474(7350):192-5. doi: 10.1038/nature10173.
10. OPTUM. Effectiveness of Homeopathy for Clinical Conditions: Evaluation of the Evidence. Overview Report. Prepared for the NHMRC Homeopathy Working Committee; 2013. [https://www.homeowatch.org/research/nhmrc\\_2013.pdf](https://www.homeowatch.org/research/nhmrc_2013.pdf).
11. Typical Consultation Process. World of Homeopathy website. <http://www.worldofhomeopathy.com/typical-consultation-process/>.
12. Zubieta JK, Bueller JA, Jackson LR, Scott DJ, Xu Y, Koeppe RA, et al. Placebo effects mediated by endogenous opioid activity on mu-opioid receptors. *J Neurosci*. 2005;25(34):7754-62. doi: 10.1523/jneurosci.0439-05.2005.
13. Benedetti F, Colloca L, Torre E, Lanotte M, Melcarne A, Pesare M, et al. Placebo-responsive Parkinson patients show decreased activity in single neurons of subthalamic nucleus. *Nat Neurosci*. 2004;7(6):587-8. doi: 10.1038/nn1250

Published Online July 20, 2017

Cite this article as: Nayernouri T. Homeopathy, ritual and magic. *Arch Iran Med*. 2017;20(11):718-722.

© 2017 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>) which permits copy and redistribute the material just in noncommercial usages, provided the original work is properly cited.