

**The Attractions of Homeopathy: Understanding the Factors Contributing to
Medical Misinformation**

A Research Paper submitted to the Department of Engineering and Society

Presented to the Faculty of the School of Engineering and Applied Science
University of Virginia • Charlottesville, Virginia

In Partial Fulfillment of the Requirements for the Degree
Bachelor of Science, School of Engineering

Brandon J. Hudson
Spring, 2022

On my honor as a University Student, I have neither given nor
received unauthorized aid on this assignment as defined by the
Honor Guidelines for Thesis-Related Assignments

ADVISOR

Bryn Seabrook, Engineering and Society

Introduction to Homeopathy:

In the United States, 6 million people use homeopathic medicine, and homeopathy is growing in popularity (Dossett et al, 2016). Homeopathic medicine has a large presence in the US. In fact, the oldest medical organization in the United States is the American Institute of Homeopathy. This research seeks to uncover the effects of misinformation, medical discrimination, and limitations of modern medicine in order to answer the question, “What factors cause misinformation to contribute to homeopathy use in the United States?”

Techniques used in Research:

In order to investigate the various factors that cause the misinformation that attracts people to homeopathy, many different sources of information are considered. Published works in the field of medical anthropology provide useful historical background as well as insight into what informs a patient’s decision about their treatments. Additionally, online platforms where homeopathy is taught and promoted, such as certain forums and Facebook groups formed for this purpose, are explored to find the appeals of homeopathy from their source. From these online platforms, various comments and posts are gathered to shed light on trends in reasoning that can be observed. This paper explores this question through a “follow the actors” approach to investigate each involved group and link them using Actor-Network Theory.

Context of the Misinformation Network:

Homeopathic medicine is a type of alternative medicine invented by Samuel Hahnemann in 1796. Founded in a time where it was common practice for doctors to use techniques now seen as brutal and unfounded, homeopathy was an alternative to the more gruesome practices of the time like bleedings. Seeing this, it is no wonder why it rose to popularity and has since established itself as a relatively common form of treatment in the United States in alternative

medicine communities. This type of alternative medicine is based on the idea that very small doses of a substance that causes a certain symptom in healthy people will fix that symptom when caused by a disease, a principle called *similia similibus curentur*. Additionally, these substances are often diluted so much that there is no detectable amount of the original substance in the homeopathic medicine.

Online misinformation, especially in social media, has promoted distrust of conventional medicine. Robertson (2021) concludes that “the rise in vaccine hesitancy” is due largely to “misinformation about safety,” and “coincides with the rise in social media.” The proliferation of misinformation about conventional medical therapies, such as FDA-approved vaccines, can deter people from seeking conventional care in favor of alternative therapies, including homeopathy. The misinformation propagated through online searches, YouTube recommendation algorithms, and social media posts includes medical misinformation. In 2019 U.S. Representative Adam Schiff, a California Democrat, wrote a public letter to Sundar Pichai, CEO of Google, and Mark Zuckerberg, CEO of Facebook, that accused their companies of undermining public trust in conventional medicine. Schiff warned: “if a concerned parent consistently sees information in their Newsfeed that casts doubt on the safety or efficacy of vaccines, it could cause them to disregard the advice of their children’s physicians and public health experts and decline to follow the recommended vaccination schedule” (Schiff, 2019).

Researchers have studied distrust in conventional medicine. Armstrong (2006, 2008) found distrust “is higher among individuals who do not have health insurance and individuals between 31 and 60 years of age,” and found differences by race in both the degree and the cause of medical distrust. This discovery is attributed to the United States’ history of medical discrimination of many racial groups. An important example of this kind of

discrimination is the Tuskegee Syphilis study where 600 black men were unknowingly infected with syphilis resulting in severe illness and death.

One influential defender of homeopathy includes Charles, Prince of Wales, who uses veterinary homeopathic treatments on his livestock “as part of a programme to reduce the use of antibiotics” (Dearden, 2016). The reason suggests that homeopathy’s popularity is due in part to some of the harmful excesses in the application of conventional medicine, including the overuse of antibiotics, which has promoted the development of antibiotic-resistant bacteria. These antibiotic-resistant bacteria have proven to be a serious problem in the medical community.

Actor-Network Theory and Homeopathy:

Actor-Network Theory (ANT) was made by sociologists Bruno Latour, Michel Callon, and Madeleine Akrich. ANT is a sociotechnical framework that is used in this research that assumes that actors, intentional human participants, and actants, non-human participants, both contribute to form a network surrounding a topic. However, this framework is somewhat controversial in its applications. From one example of its controversy, it has been suggested that ANT is used frequently because of the framework’s inability to set “internal and external boundaries” allowing for the scope of its analysis to be too broad (Neyland, 2006). However, by intentionally limiting the scope to modern misinformation in the United States, this research will avoid this issue. Another controversy associated with ANT is that is applied to make all participants in the network equal, whether they be human or non-human. This can be concerning for some who cannot see non-human participants as having a major impact on human networks. However, many would argue that while humans have a major role in their networks, it is undeniable that networks are shaped by nonhuman actants. For example, over the past few

decades the worldwide web, an invention, has completely reshaped how people who have access to the internet spend their personal time and who they can spend that time with.

There are currently no recent publications that use ANT to investigate homeopathic medicine. One notable usage of ANT outside of the field of Science, Technology, and Society was in an investigation of the legal aspects of the human remains found after the 9/11 terrorist attacks. Here, ANT was used to understand the legal significance of human remains by giving these remains equal importance with human actors and nonhuman actants (Toom, 2015). With so many new technologies that shape our society, like social media, a new study looking at the effect technology of this specific alternative medicine is worth examining.

Analysis of the Misinformation Network:

In short, the spheres surrounding western medicine and social media work together to create a network that encourages misinformation. This network formation happens through the development of fears due to western medicine's history and limitations which then leads to the creation of private online communities, that shield their users from the thoughts of outsiders. The following discussion covers each of the main actors and actants in these spheres and discuss how they interact to form this network. The actors studied here are regulatory agencies and social media corporations and users, while the actants in this network are current western medical technology and social media.

Western Medicine

Medical technology has many actants involved its formation and application. Some of the main actors here are the relevant regulatory agencies, such as the FDA and NIH. These organizations often take stances against misinformation about homeopathy. An example of their stance is the FDA warning parents against using homeopathic medicine to treat their children for

asthma (CDER, 2015). However, these organizations can also be interpreted as sending mixed messages about the effectiveness of homeopathy. The FDA states that their goal is to prioritize regulation and enforcement actions on products that have significant safety concerns, claim to treat deadly diseases, or are marketed to vulnerable populations (FDA, 2021). Therefore, this organization does not actively take any action against most homeopathic products beyond requiring a label state that it is homeopathic. This type of perceived apathy towards homeopathic medicine that does not meet these criteria can be interpreted as approval of it. Is it unlikely that a person sick with pinkeye will see homeopathic eye drops beside western medicine in the drug store and assume it has the same effectiveness? This situation can become a reality for many people, and the American attitude that it is up to the consumer to evaluate each product might not translate well to the over-the-counter medicine the average person uses.

Perhaps one of the most important actants is western medicine as a whole. While it is an inanimate technology, its history and limitations are a breeding ground for misinformation about its current applications. These matters can be just as important to a patient as the effectiveness of the medicine when they are making choices about their healthcare.

Western medicine, especially in the United States, has a long history of discrimination and harming vulnerable groups. As discussed in the background information, many minority groups have experienced terrible treatment at the hands of medical researchers and the government. Understandably this history is a large factor in people distrusting the current medical system. Proof of medical suspicion can be seen in the responses to COVID-19 vaccination. One survey showed that 49% of Black Americans were interested to get vaccinated for COVID-19, while 63% of White Americans were. Further, the same study found that 37% of the people who said they were not interested did so because they did not trust those who made

the vaccine (Reuters, 2020). Situations such as this are not limited to only African Americans. A documentary produced by Children's Health Defense, an antivaccination group, shows an interview with a Native American who states that he could not trust the U.S. government's health advice because they "destroyed the Cherokee Nation with smallpox" (CDH, 2022). This type of distrust often predisposes people to believe misinformation about the effectiveness of homeopathic medicine.

In addition to western medicine's history of discrimination, it also has several limitations that contribute to the misinformation from people wanting to fill in the gaps. Some of the technology's limitations are through issues surrounding antibiotic usage. One such issue with antibiotics is antibiotic resistance. Antibiotic resistance is where pathogens are not killed from the antibiotics prescribed to treat them. It is becoming more common in American society due to antibiotics being prescribed too often and from the regimen not being completed. As mentioned earlier, this is the reason Charles, Prince of Wales, uses homeopathy for his livestock (Dearden, 2016). Additionally, the preference for homeopathic medicine for infection treatment is also expanded to others. The effects of antibiotics are often exaggerated by individuals wishing to scare people away from using them. One example of this is Paola Brown's Homeopathy, a U.S. based Facebook page with nearly 12,000 followers, which actively warns against taking antibiotics stating that "Antibiotics are like a bulldozer in your gut flora. You're not going to be back to normal a year later." (Paola Brown's Homeopathy, 2022). With so much fear surrounding a certain type of medicine, it is not surprising that many search for alternatives.

Further limitations of western medicine include its inability to treat certain disease. Many Americans can suffer from chronic diseases, such as diabetes and depression. These problems are not simply cured from a treatment plan, instead the patient must be treated for the symptoms

over a long time. Researchers have found that people with these diseases are more likely to seek out treatment from alternative medicines such as homeopathy (White, 2000). One reason for this is because homeopathy comes with the bold claim that it will strengthen the body and fix any known disease.

Social Media

Another actant in this network is social media as it is widely used to communicate ideas about homeopathy. Many social medias such as Facebook and Twitter reward posts that are interacted with by increasing the likelihood of another person seeing the post. This can create a dangerous situation where misinformation that is liked and shared will be pushed onto more people. Additionally, the more friends and strangers who interact with a post will give the post more credibility in the eyes of the user, creating a feedback loop effect. Hashemi recognized this effect by saying “your neighbor is just as much a source of insightful analysis on the nuances of U.S. foreign policy towards Iran as regional scholars, arms control experts, or journalists covering the State Department.” (Hashemi, 2016). In other words, the era of social media has made everybody an expert on everything, or so it may seem. With so little verification of information from personal sources, it is nearly impossible for a social media user to tell what claims true and what claims are false.

While the technology of social media is made for the purpose of keeping people connected, it can also be used as a tool of exclusion. One of the first things one will notice in researching homeopathic medicine’s presence in social media is the lengths the groups go to in order to prevent outsiders from voicing their opinions. One such community, r/homeopathy on Reddit, requires new posters to be approved before being allowed to comment or post. On

Facebook, many of the homeopath groups are set to private so outsiders cannot even see what is being discussed. This is not something that is limited to medical topic groups either, it has spread into nearly every topic community. Once social media “[became] more widespread, users have become ensconced within specific, self-selected groups, which means that news and views are shared nearly exclusively with like-minded users.” (Prier, 2017). To expand on that idea, people are no longer exposed to outside opinions. When a disagreement can easily be resolved by a simple block or ban, the ability to have a discussion on a certain topic disappears completely and is instead replaced with the people whose opinion match their own.

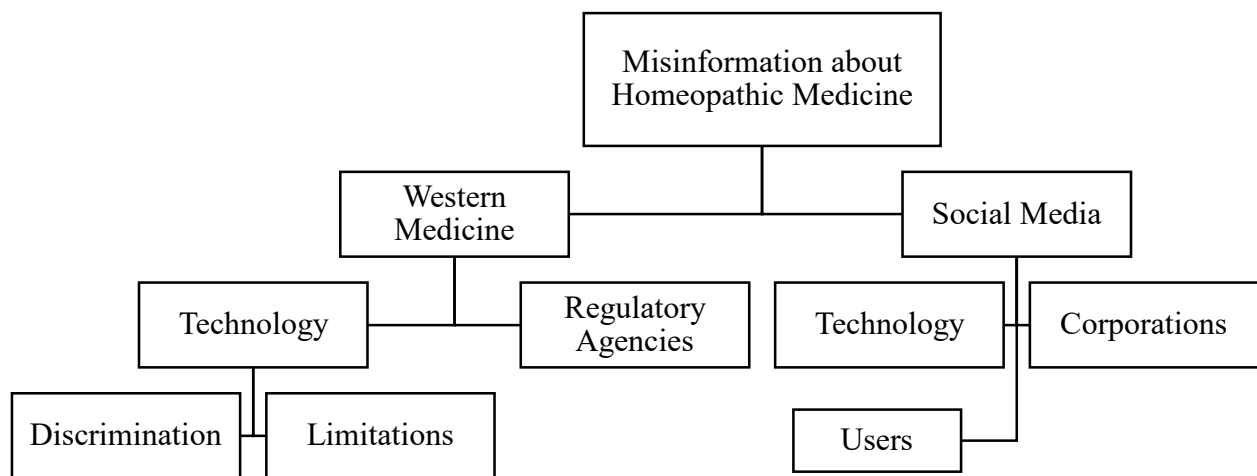


Figure 1: A Graphical Representation of the Network Surrounding misinformation about homeopathy

Limitations & Future Work

There are certain limitations in this research that are worth noting. First, this paper intentionally avoids the historical context of homeopathy and how that interacts with the modern disinformation. This could potentially have an impact on how the disinformation has been shaped over time to cater to the new generations. Moreover, the research was limited to just the

United States. Future research should be done for geographic regions where homeopathy is increasing at higher rates, such as India and Pakistan. Also, earlier it was discussed that many of the homeopathy groups online are set to be private forums. A future researcher could try to enter these groups to get an idea of what is discussed inside.

Conclusions from the Analysis:

Each of these actors and actants interact to make the space surrounding disinformation that leads people to homeopathy. The medical structure in America allows the sale of homeopathic drugs alongside conventional medicine. Next, the history of western medicine was seen to cause a high degree of caution from groups that have been harmed by it. A sample of the limitations of western medicine were also shown to create fear and cause people to attempt to find other sources of medicine. Social media works with these fears and unifies groups around topics to create insulated communities that are immune to the opinions of outsiders. These factors work together to undermine the trust in western medicine.

References

- Armstrong, K., McMurphy, S., Dean, L.T. et al. (2008). Differences in the patterns of health care system distrust between blacks and whites. *Journal of General Internal Medicine* 23, 827–833 <https://doi-org.proxy01.its.virginia.edu/10.1007/s11606-008-0561-9>
- Armstrong, K., Rose, A., Peters, N. et al. (2006). Distrust of the health care system and self-reported health in the United States. *Journal of General Internal Medicine* 21, 292 <https://doi-org.proxy01.its.virginia.edu/10.1111/j.1525-1497.2006.00396.x>
- CDER. (2015, March 20). Center for Drug Evaluation and Research. U.S. Food and Drug Administration. FDA warns consumers about the potential health risks of over-the-counter. U.S. Food and Drug Administration. <https://www.fda.gov/drugs/drug-safety-and-availability/fda-warns-consumers-about-potential-health-risks-over-counter-asthma-products-labeled-homeopathic>
- CHD. (2022, Feb 28). Medical Racism: The New Apartheid [Video]. Children’s Health Defense. <https://live.childrenshealthdefense.org/medical-racism-the-new-apartheid-showing>
- Dearden, L. (2016, May 13). Prince Charles uses homeopathy to 'treat' animals on his organic farm. *The Independent*. <https://www.independent.co.uk/news/people/prince-charles-uses-homeopathy-treat-animals-his-organic-farm-fight-antibiotic-resistance-a7027216.html>
- Dossett, M. L., Davis, R. B., Kaptchuk, T. J., & Yeh, G. Y. (2016, April). Homeopathy use by US adults: results of a national survey. *American Journal of Public Health*, 106(4), 743–745. <https://doi.org/10.2105/AJPH.2015.303025>
- FDA. (2021, Nov 1). Homeopathic products. U.S. Food and Drug Administration. Retrieved March 20, 2022, from <https://www.fda.gov/drugs/information-drug-class/homeopathic-products>
- Hashemi, T. (2016, Dec 16). The business of ideas is in trouble: Re-injecting facts into a Post-Truth World. War on the Rocks. Retrieved March 20, 2022, from <https://warontherocks.com/2016/12/the-business-of-ideas-is-in-trouble-re-injecting-facts-into-a-post-truth-world/>
- Neyland, D. (2006). Dismissed Content and Discontent: An Analysis of the Strategic Aspects of Actor-Network Theory. *Science, Technology, & Human Values*, 31(1), 29–51. <https://doi.org/10.1177/0162243905280022>
- Paola Brown’s Homeopathy. (2022, Jan 15). Did you know that if you spend a decade eating perfectly and nourishing your gut bacteria, even one single round. Facebook. <https://www.facebook.com/PaolaBrownHomeopathy/posts/1910175679164621>
- Prier, J. (2017). Commanding the Trend: Social Media as Information Warfare. *Strategic Studies Quarterly*, 11(4), 50–85. <http://www.jstor.org/stable/26271634>
- Reuters. (2020, Dec 10). Who wants the vaccine? Reuters/Ipsos. <https://graphics.reuters.com/HEALTH-CORONAVIRUS/VACCINE-POLL/qzjqpqdejzvx/>
- Robertson, E., Reeve, K. S., Niedzwiedz, C. L., Moore, J., Blake, M., Green, M., Katikireddi, S. V., & Benzeval, M. J. (2021). Predictors of COVID-19 vaccine hesitancy in the UK household

longitudinal study. *Brain, behavior, and immunity*, 94, 41–50.
<https://doi.org/10.1016/j.bbi.2021.03.008>

Schiff, A. (2019, Feb. 14). Schiff Sends Letter to Google, Facebook Regarding Anti-Vaccine Misinformation (press release). Adam Schiff: Representing California's 28th District. schiff.house.gov/news/press-releases/schiff-sends-letter-to-google-facebook-regarding-anti-vaccine-misinformation

Toom, V. (2016). Whose Body Is It? Technological Materialization of Victims' Bodies and Remains after the World Trade Center Terrorist Attacks. *Science, Technology, & Human Values*, 41(4), 686–708. <https://doi.org/10.1177/0162243915624145>

White, K. P. (2000). Psychology and complementary and alternative medicine. *Professional Psychology: Research and Practice*, 31(6), 671.