Survey Study:

Pseudoscience in Media

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Introduction

As information becomes more accessible for increasing populations across the internet, it becomes easier for internet users to be introduced to new ideas. Pseudoscience is a concept that utilizes traditional scientific ideas and fabricates further claims. As experts note, "pseudoscience, as the etymology of the word suggests, is a form of imitation or fakery" (Boudry et al., 2015). Most pseudoscientific ideas initially appear logical and can sound even more credible when backed with credible-sounding sources. The ideas are deceitful in nature, and without proper research done to debunk a theory, it is easy for internet users to fall victim to belief.

Pseudoscience appears in a variety of forms throughout popular media. Practical examples include the uprise of the anti-vaccination moment, fueled by false and deceptive cause-and-effect claims, such as the debunked link between autism and childhood vaccines. Related false ideas are spread due to the rapid nature of sharing information over the internet and the lack of time to be questioned. "Real scientific discoveries are tirelessly verified and scrutinized by the scientific community over and over again" (Terrill, 2020) and without the ability to be questioned and tested repeatedly, pseudoscientific ideas continue to be shared.

The spread of pseudoscience across popular media is harmful to populations because it can lead to individuals harming themselves or those around them. Refusing medicine or hospital treatment has become increasingly popular due to pseudoscientific information. A strong belief in pseudoscience can also be monetarily harmful by persuading individuals to spend and lose money on concepts that do not benefit them. Experts recognize this threat and aim to investigate alternatives to prevent internet users from continually falling for pseudoscience on the internet.

This paper discusses the results of a survey designed to investigate public opinion on pseudoscience and their approach to pseudoscientific ideas in popular media. The analysis of survey responses will attempt to answer the following question: how do people react to pseudoscientific ideas on the internet?

Method

Our research team collaborated to create a survey regarding the topic of pseudoscience. After thoroughly researching the topic, our team constructed a survey using the Qualtrics XM Online Survey Software. We conducted research to design questions focused on pseudoscientific ideas and their presentation in media. This included asking respondents about real concepts founded by pseudoscience, such as alternative medicine and anti-vax rhetoric.

The survey used a funnel question sequence by asking respondents broad questions first, then narrowing with questions about specific pseudoscience ideas. We incorporated a variety of questions using multiple choice response options for respondents to provide their most accurate opinion.

After completing the survey, we then distributed the survey to several individuals close to the research team. Thereafter, we posted the survey to the Reddit forum r/SampleSize. After receiving an ample number of responses, our research team collected and organized the data. With this data at hand, our team was able to draw conclusions regarding our survey responses to best answer our research question.

Results and Discussion

After distribution, we received 21 responses.

Listed below are the results of our surveys.

Demographic Data:

What is your ethnicity?	# of Occurrences Among Respondents
American Indian or Alaska Native	0
Asian	0
Black or African American	0
Native Hawaiian or Pacific Islander	0
White	15
Other	3

What is your highest completed level of education?	# of Occurrences Among Respondents
Less than high school	0
High school graduate	3
Some college	3
2 year degree	1
4 year degree	7
Master's	2
Doctorate	2

How do you self-identify?	# of Occurrences Among Respondents
Male	12
Female	7
Non-binary/ third gender	0
Prefer not to say	0

Pseudoscience Data:

I am familiar with the concept of pseudoscience.	# of Occurrences Among Respondents
Strongly Disagree	2
Somewhat Disagree	0
Neither agree nor disagree	4
Somewhat agree	4
Strongly agree	9

How likely are you to correctly identify pseudoscience on the internet?	# of Occurrences Among Respondents
Extremely Unlikely	2
Somewhat Unlikely	3
Neither likely nor unlikely	3
Somewhat Likely	8
Extremely Likely	3

Select all of the following ideologies that you subscribe to:	# of Occurrences Among Respondents
Astrology	2
Homeopathy	1
Crystal Healing	2
Manifestation	3
Acupuncture	2
Hypnosis	1
None of the Above	16

If an idea is extremely popular on the internet, there must be some truth to it.	# of Occurrences Among Respondents
Strongly Disagree	7
Somewhat Disagree	6
Neither agree nor disagree	6
Somewhat agree	0
Strongly agree	0

	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
Alternative medicine is a good option to treat diseases.	3	7	5	2	1
Global warming and climate change are a severe threat to the planet.	2	1	0	3	11
Spiritual energy has	8	4	2	2	2

the ability to heal.				
Vaccines are beneficial to your health.	1	0	3	2	12

In review, our respondents reported a general disbelief in pseudoscience. 64% of respondents expressed that they were familiar with the concept of pseudoscience. Another 58% of respondents said that they are likely to properly identify faulty science on the internet. 64% of respondents disagreed that if an idea is viral on the internet, there must be some truth to it. When shown six of the most common forms of pseudoscience, only 15% of respondents believed in one or more, whereas 85% believed in none of the pseudosciences listed. The most frequently believed forms of pseudoscience were Manifestation, Crystal Healing, Astrology, and Acupuncture, though these ideologies only represent a small portion of our sample size. Further, when presented with two scientifically backed concepts and two forms of faulty science, our respondents strongly trended toward belief in science and disbelief in pseudoscience.

Over 60% of respondents stated that their highest level of completed education is a four-year degree or higher. Combining this demographic with the survey results, it can be assumed that individuals with a higher level of education are less likely to believe pseudoscience ideas and may feel more confident in identifying pseudoscience on the internet. There is a positive correlation between higher education levels and disbelief in pseudoscience. Individuals with higher education levels are more inclined to question ideas, which as experts state, is one of the pivotal solutions in identifying and debunking pseudoscientific ideas.

Pseudoscience is perhaps more prevalent now than ever before. "Health gurus," homeopathic doctors, and even celebrities have pushed forward numerous treatments for the ongoing Covid-19 pandemic, from miracle cures to livestock de-wormer. Our research cannot effectively link the many outrageous claims that may cure Covid-19 to a general distrust in pseudoscientific ideologies; however, 67.8% of Americans have received at least one Covid-19 vaccine dose (Mayo Clinic, 2021). This trend, along with our data, suggests that respondents are generally jaded and distrusting in pseudoscientific assertions found on the internet.

References

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