

Urban Legends and the Flu: A Survey of College Students' Perceptions

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Research Question

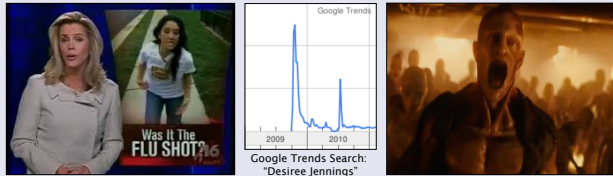
Formally educated parents seem to be at the core of anti-vaccination movements. Since college and graduate students are young adults who will become the next generation of educated parents, our aim was to identify vaccination sentiments in this age group. This research could help elucidate vaccination practices and beliefs of parents in the future.

Background and Methods

Historically, vaccination is a relatively new medical practice. After the initial enthusiasm in mid-twentieth century, there has emerged an anti-vaccination movement that contributes to widespread distrust of vaccination as a medical practice. The Vaccination Research Group is interested in understanding the social and cultural contexts for this distrust and examining the themes and stories that are told in anti-vaccination narratives.

The H1N1 pandemic of 2009 and current recommendations that all citizens over the age of 6 months receive the seasonal influenza vaccination make college students an important group to study with respect to vaccination practices and beliefs. During the semester of fall 2010, the Vaccination Research Group conducted an online survey of Virginia Tech undergraduates, Radford nursing students, and Virginia Tech School of Medicine students concerning H1N1 and seasonal flu vaccination practices and beliefs (IRB # 10-732). The survey collected demographic information from respondents and also asked for narrative responses regarding vaccination beliefs and reasons for their practices. There were almost 540 respondents from the population.

The survey generated significant quantitative data but, interestingly, we also note significant narrative elements relating to urban legends in students' responses. Analysis of the narrative portion of the qualitative data involved coding using grounded theory methods. A number of students mentioned a popular news story and viral video of the cheerleader who developed "dystonia," a neurological movement disorder, after receiving the H1N1 vaccination. Additionally, a few students mentioned the risk of becoming a zombie as a result of receiving this vaccine. For this poster presentation, we will analyze the data received from the survey with an eye toward understanding how urban legends frame anti-vaccination sentiments.



Demographics

Sex: Male: 28% Female: 72%	Area in which your family home is located: Rural: 22% Urban: 11% Suburbs: 66%
Racial group identity: Caucasian: 87% American Indian/Alaska Native: 0% Asian: 4% African American: 2% Native Hawaiian/Pacific Islander: 0% Hispanic: 2% Latino: 1% Other: 3% No Answer: 1%	What is your major or study? Medicine: 4% Nursing: 7% Health Science: 4% Undergrad. Natural Science: 5% Undergrad. Engineering: 5% Undergrad. Architecture/Planning: 1% Undergrad. Finer Performing Arts: 3% Undergrad. Social Science: 14% Undergrad. Humanities: 12% Undergrad. Natural Resource or Agriculture: 11% Undergrad. Business: 12% Other: 21% No Answer: 1%
Age: 18-23 years: 93% 24-29 years: 4% 30-35 years: 1% 36-41 years: 1% 42 years and up: 1%	

General Findings

Have you chosen to get the H1N1 (Swine Flu) vaccine since it became available?

Yes: 36%
No: 64%
No Answer: 0%

If you answered no, please check the two most influencing reasons:

Inconvenient: 28%
Afraid of side effects: 16%
It was not available: 8%
Did not know there was a vaccination: 4%
No health insurance: 3%
Other: 25%

Do you believe the H1N1 (Swine Flu) vaccine could be dangerous to your health?

Yes: 27%
No: 70%
No Answer: 3%

Did you receive enough information about the seasonal flu and H1N1 (Swine Flu) vaccinations from your physician or local health care center?

Yes: 55%
No: 27%
N/A: 16%
No Answer: 1%

How would seasonal flu and H1N1 vaccination information best reach you?

TV commercials: 49%
Radio commercials: 11%
Flyers/Handouts: 24%
Posters: 19%
Online advertisements: 31%
Newspaper advertisements: 5%
Magazine advertisements: 5%
Advertisements in Pharmacies: 17%
Physicians and Pharmacists: 43%
Other: 8%

Of the two you chose, which one is most influential?

Physicians: 28%
Family members: 28%
Friends: 3%
Health articles: 2%
Magazines: 0%
TV: 15%
Public Health Flyers: 8%
Online websites/Internet: 7%
Other: 4%
No Answer: 3%

Do you think the vaccinations for the seasonal flu and the H1N1 (Swine Flu) are important public health measure?

Yes: 83%
No: 16%
No Answer: 1%

Have any of your friends or family been sick with the seasonal flu or H1N1 (Swine Flu)?

Yes: 55%
No: 45%

Did the person's illness affect your decision to be vaccinated against the seasonal flu or H1N1 (swine flu)?

Yes: 14%
No: 82%
No Answer: 4%



Questions of Interest

The following questions received qualitative responses, which were coded into various categories:

Do you believe the H1N1 (Swine Flu) vaccine could be dangerous to your health? If yes, please explain why.

Scared of Side Effects: 42%
Newness/Insufficient Testing: 28%
Safety of Ingredients: 15%
Getting Flu from the Vaccine: 10%
Ineffectiveness of Vaccine: 8%
Don't Think Vaccine is Necessary: 8%
Lack of Education: 4%

What do you believe are the side effects of the H1N1 (Swine Flu) vaccine? Please explain any you have heard:

No Response: 56%
CDC reported symptoms/similar to flu shot symptoms/"flu-like": 49%
Not Sure/Haven't Heard: 22%
Getting the flu/H1N1: 13%
None: 9%

Paralysis/Death: 4%
Drug Companies Scam: 4%
Answer Relating to Trust: 3%
Mutation of Virus: 3%
Cheerleader Video: 3%
Production Methods: 2%
Answer Relating to Zombies: 2%

GBS/dystonia/Redskins cheerleader: 5%
Weakened Immune System: 1%
Pig-Related Responses: 1%
Answer Related to Zombies: 0%
Death: 0%

Discussion

Vaccination and Zombies:

Although many respondents answered the prompt questions with realistic answers it is important to note the mention of zombies in several of the responses. The research team believes that these respondents were not taking the survey seriously, but the fact that more than one person stated that "becoming a zombie" was a side effect of the H1N1 vaccination warrants attention.

Throughout the early 1900's, theories were suggested stating that the use of psychoactive drugs or the use of tetrodotoxin and datura could create zombies. However, the most recent folk lore states that zombies are created by the transmission of a virus, specifically from the order Mononegavirales. This particular order of viruses uses negative strand RNA as their genome, which is small and can mutate easily. Examples of these viruses include rabies virus and filoviridae virus. These and other similar viruses can cause "zombie-like" symptoms such as catatonia, aggression, and a general unresponsiveness to stimuli. Because of this, zombies may be people showing the symptoms of other diseases.

Since zombie myth tells us that they originate from viruses, vaccines have become a prominent target for speculated zombie creation in our culture. For example, the 2007 movie, *I Am Legend*, a cancer vaccine is created that contains a live virus. Eventually this virus mutates and everyone that received the vaccine turns into a zombie. Scenes like this are becoming more common and increasing numbers of people are being exposed to this story line. Zombies have become a theme, plot, and main character in the narrative world. Because of what science tells us about the potential dangers of mutated viruses of all types, zombie transformation by vaccine sounds plausible to an extent. As zombies fill our pop culture the line between myth and reality begins to blur resulting in people who may well believe that a vaccine could cause them to turn into a zombie.

The Redskins Cheerleader Story:

In early October 2009, news stories hit the media and flooded the Internet about Desiree Jennings, a 25-year-old Redskins cheerleader. She claimed to suffer from severe dystonia, a debilitating neurological movement disorder, as a result of a seasonal flu shot. News articles, blogs, and YouTube videos all circulated the story that quickly became viral. After her routine flu shot, Desiree fell ill with fever and body aches. Soon Desiree developed an unusual speech impediment that made her sound as if she had a foreign accent. However, the symptom that most intrigued America was Desiree's strange inability to walk forward in a straight line. The once extremely active cheerleader could now only walk and run backwards or sideways. YouTube videos featuring Desiree soared to millions of views, and Desiree developed a fan base on Facebook and other social networking sites. The Washington cheerleader's coverage continued through a 20/20 episode and Dateline feature. Although Google Searches data show the public's interest dwindled significantly after the original news broke in late 2009, there was a significant, although much smaller, response to a new story revealing Desiree Jennings entire situation was potentially a hoax in mid 2010. Nevertheless, the bizarre story had made its impact on many Americans too nervous to receive their flu shot in fear of developing dystonia.

Fear and Distrust:

Only two of 121 responses reflected any belief in zombies as a side effect of vaccinations. One responded, "It makes me think of I Am Legend. No one wants that to happen." Four responses reflected fear in the safety of the vaccine because of the Redskins Cheerleader who developed a rare neurological condition after receiving the flu shot. Zombies and the Redskin's cheerleader are the only reflection of urban legends evident in the responses.

The majority of the responses elicited distrust. Four responses directly stated distrust in the vaccine, but 18 respondents revealed that they did not trust the safety of the ingredients in the H1N1 vaccine. One participant responded, "the government doesn't fully know the substances involved...Vaccines have a LONG history of dangerous side effects...Vaccines contain disgusting ingredients such as aborted humans (listed as human diploid cells on ingredient list), monkey cells, chicken egg cells, and harmful ingredients used as preservatives (such as mercury, Thimerosal, etc)." Thirty respondents revealed they did not trust the vaccine because of newness and insufficient testing, while five responses reflected a belief in drug company scams. One participant said, "The drug manufacturing companies have their own agenda...They engineered the H1N1 virus to spread rapidly and have intense symptoms. A bunch of hysteria was created to cause a small group to profit immensely." Even though urban legends were not the main cause of hesitation in the participants to receive the vaccine, general distrust of vaccinations seemed to be the overall main contributing factor.