To be vaccinated or not - how does the Internet influence a pregnant woman’s decision?

Abstract

Do you go online for your health-related questions? You are not alone! More and more people are using the Internet to gather medical information. Lately, there has been debate about the safety of vaccines in online media. Vaccines protect us from infectious diseases and save millions of lives every year. Vaccination during pregnancy protects newborn babies as well. But how does online media influence a pregnant woman’s opinion about vaccination? Here, we examined the online media about two maternal vaccinations: whooping cough (pertussis), and the flu (influenza). The majority of the articles supported both vaccines. Most pertussis articles used real-life cases and focused on protecting the baby. The influenza articles focused on protecting the mother, or both the mother and the baby. Then, we surveyed pregnant women and health care providers. Their opinions were similar to those expressed in the articles. Our results may explain why more women are receiving pertussis vaccine compared to influenza.

Introduction

Vaccines are one of the greatest health developments of modern medicine. Thanks to widespread vaccination coverage, today many infectious diseases are under control. Vaccines have been so successful that people nowadays are often unaware of the risks of these serious (and previously devastating) diseases. As a result, today some people debate if vaccines are safe and efficient. They are, but online media allows negative and inaccurate information to reach many people - and this influences their vaccination decision-making. The decrease in vaccine confidence is a major concern for global health. This loss of trust in vaccines and the refusal to vaccinate threatens our progress in tackling many preventable diseases.

Pertussis (whooping cough) and influenza (flu) are highly contagious respiratory infections. They can be very dangerous - even deadly - for high-risk groups like newborn babies. Luckily, vaccination during pregnancy is an efficient and safe way to protect the mother and the baby from these diseases. A vaccinated mother passes immunity to the fetus, which then protects the baby when it is born. (Fig. 1) Despite their availability and life-saving value, the vaccination rate among pregnant women remains less than ideal. This can lead to deadly cases of both diseases in newborn babies. Is online media influencing mothers’ decisions about receiving these vaccines? To find out, we studied online articles about maternal pertussis and influenza vaccines, and their influence on women’s decision-making.
Methods

Online media articles: We searched for online articles related to maternal pertussis and influenza vaccination that were published during two different time periods:
- July to December 2012 - This is when healthcare providers first started offering pertussis vaccine to pregnant women regularly.
- November 2015 to April 2016 - This was the most recent six months of data during our research.

Then, we compared how the number of articles on each vaccination had changed over time. We analyzed each article to determine whether it encouraged or discouraged vaccine usage. (Fig. 2)

Results

Articles:
- We identified 203 news articles - 60% were related to pertussis vaccination, 33% to influenza and 6% to both.
- We categorized these articles into 12 themes – 10 of these were positive themes where articles encouraged readers to be vaccinated and two were negative.
- The majority (97%) of the articles positively portrayed vaccination in pregnancy.
- Negative articles (3%) criticized pertussis vaccination safety and efficacy.
- Positively-worded pertussis articles focused on protection of the baby, using real-life cases as examples, whereas positive influenza articles focused on protection of the mother. (Fig. 2)

Questionnaires: We developed two separate questionnaires for pregnant women and medical staff:
- We asked pregnant women whether they had received or were planning to receive influenza and pertussis vaccination.
- We asked both pregnant women and their medical providers who the influenza and pertussis vaccines primarily protect: the mother, the baby, or both equally.
- We selected four hospitals in South England.

From July 2017 to January 2018, 314 pregnant women and 204 medical providers (midwives or obstetricians) filled out our questionnaires.

22% of the pregnant women planned to decline influenza and 8% planned to decline pertussis vaccination.

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Vaccination rates among pregnant women vary from country to country, and even from region to region within a country. But it is generally lower than ideal. Our study is the first one to analyze online articles by their themes and their influence on pregnant women’s decision-making.

We found that most of the online articles support pertussis and influenza vaccinations during pregnancy. This is very encouraging, but inaccurate negative information also exists. Pertussis vaccination articles mostly focus on the high risk of infection for the baby using specific real-life cases of death. However, influenza articles focus on benefits to the mother. We saw similar trends in the responses to our questionnaire. The protection pertussis vaccination provides to an infant is a major motivator for pregnant women to get vaccinated.

Based on our results, we can suggest some strategies for healthcare providers:

1. Emphasize the benefits of maternal vaccination to the baby by giving real-life examples.
2. Educate women about how the health of the mother and baby are connected.
3. Be prepared to counteract the inaccurate negative information by specifically mentioning the negative media women may have read.

These strategies may help to increase pregnant women’s vaccine confidence.

**Conclusion**

In our technology-driven world, the power of online media is undeniable. However, not everything on the Internet is true. Inaccurate information may lead people to make harmful decisions such as refusing vaccination. You can protect yourself and help others by being a smart internet user. As a rule, websites of government agencies and medical schools are good and reliable sources of information. Most importantly, use the information you find online as one tool to become more informed. Then discuss what you find with your doctor before making any health decision.

**REFERENCES**


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WHO- The power of vaccines: still not fully utilized
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Glossary of Key Terms

**Efficacy** – the ability to produce desired results - in this case, to protect against infection. In vaccine debate, people against vaccination say that vaccines do not protect against diseases, or have low efficacy.

**Fetus** – an unborn human baby more than eight weeks old.

**Immunity** – the ability of a person to resist an infection. Here, pregnant women pass on antibodies to the fetus, which then protect the baby for the first few months after birth.

**Infectious** – a disease or disease-causing organism that is likely to spread from people to people or through the environment. Flu is a highly infectious disease.

**Influenza** – is a viral infection (caused by a virus) that attacks the respiratory system — the nose, throat, and lungs. Influenza is commonly called the flu. For most people, influenza resolves on its own. But sometimes, influenza and its complications can be deadly. Children under 2 years old and pregnant women are at high risk of developing flu complications.

**Maternal** – relating to a mother, especially during pregnancy or shortly after birth.

**Midwife** – a person trained to help women in childbirth.

**Obstetrician** – a doctor who specializes in pregnancy, childbirth, and a woman's reproductive system.

**Pertussis (whooping cough)** – a highly contagious respiratory disease caused by bacteria. Pertussis is known for prolonged coughing, and it used to be known as the '100-day cough'. Once a person with pertussis starts to cough, they can find it difficult to stop coughing, which often makes it hard to breathe. Adults or older children, often need to take a very deep breath after a coughing fit, which can make a "whooping" sound. In young babies, it is common for them to stop breathing for a short amount of time after a coughing fit (this is called an apnoea). Pertussis can affect people of all ages, but can be very serious, even deadly, for babies less than a year old. The best way to protect against pertussis is by getting vaccinated.

**Questionnaire** – a set of printed or written questions with a choice of answers, prepared for the purposes of a survey or statistical study.

**Vaccines** – a type of medicine prepared with a dead or weakened form, or part of a virus or bacteria. It trains the body’s immune system so that it can fight a disease it has not come into contact with before. Vaccines are designed to prevent disease, rather than treat a disease once you have caught it.

**Vaccine confidence** – is the trust that parents, patients, or providers have in: recommended vaccines; providers who administer vaccines; and processes and policies that lead to vaccine development and recommendations for use.

**Vaccination rate or vaccination coverage** – the number of people who are vaccinated against a disease. The ratio of people vaccinated to those who are not.

Check your understanding

1. What is a vaccine? How does it protect us from infectious diseases?

2. What is vaccine confidence? Why could online media lower vaccine confidence?

3. Why did the scientists survey pregnant women and health care providers? What did they find?

4. Why do more pregnant women get vaccinated against pertussis compared to influenza?

5. How can healthcare providers help pregnant women who are hesitant to get vaccinated?