

# CONTENT REVIEW OF VACCINES AND VACCINATION RELATED NEWS IN INTERNET NEWSPAPERS

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## Abstract

It is known that newspaper news is an important cause of the increasing vaccination refusal in Turkey. However, there has been no content or number review about the news. The aim of this study is to conduct a qualitative and quantitative analysis of news about vaccines and vaccinations and to enlighten the interventions that will prevent the misinformation of the society in this way. All news of the three most popular newspapers on the internet about vaccines and vaccination within the last three years were reviewed. The characteristics of 286 news such as type, date, source, subjects, its message and the compatibility with the scientific data were evaluated. It was observed that the number of news on vaccines and vaccination have been increasing over the years. It was found that the number of news on vaccination refusal in 2018 was statistically significant compared to those of other years ( $p<0.00$ ). When the news contain incompatible with scientific data were examined, it was observed that autism, multiple sclerosis, Alzheimer's and other chronic diseases were associated with vaccination, there was claims that vaccines are unnecessary, and there were news including incorrect information about vaccination in situations such as pregnancy and egg allergy. Information is the fundamental step in any intervention aimed at increasing vaccine coverage. Internet newspapers are important in the circulation of health information and should be used more frequently. However, news should be checked by health authorities; non-scientific and misleading information should be prevented.

**Key Words:** Newspapers, internet, vaccination refusal, vaccination, health communication.

## İNTERNET GAZETELERİNİN AŞILAR ve AŞILAMAYLA İLGİLİ HABERLERİNİN İÇERİK İNCELEMESİ

Ülkemizde artan aşı karşıtlığının önemli bir nedeninin gazete haberleri olduğu bilinmektedir. Ancak bu haberlere ilişkin bir içerik ve sayı incelemesi yapılmamıştır. Bu araştırmanın amacı aşılar ve aşılama ile ilgili yapılan gazete haberlerinin niteliksel ve niceliksel incelemesini yapmak, bu yolla toplumun yanlış bilgilendirilmesine engel olacak müdahalelere ışık tutmaktır. İnternette en çok tıklanan 3 gazetenin aşılar ve aşılama ile ilgili son 3 yıla ait tüm haberleri incelenmiştir. Ulaşılan 286 haberin: türü, tarihi, kaynağı, konuları, verdiği mesaj ve bilimsel verilerle uyumluluğu gibi özellikleri değerlendirilmiştir. Haber sayılarının yıllar içinde arttığı görülmüştür. 'Aşı karşıtlığı' konusunda 2018 yılında yapılan haberlerin sayısının diğer yıllarda yapılanlardan istatistiksel olarak anlamlı düzeyde fazla olduğu bulunmuştur ( $p<0,00$ ). Bilimsel verilerle uyumsuz haberlere bakıldığında otizm, multiple skleroz, Alzheimer ve başka kronik hastalıkların aşılarla ilişkilendirildiği; aşıların gereksiz olduğu iddiaları; gebelik ve yumurta alerjisi gibi durumlarda aşılama ile ilgili yanlış bilgi içeren haberlerin bulunduğu görülmüştür. Bilgilendirme aşı kapsayıcılığının artırılmasını hedefleyen her müdahalenin temel basamağıdır. Sağlık bilgisinin topluma ulaştırılmasında internet gazeteleri önemlidir ve daha sık kullanılmalıdır. Ancak haberler sağlık otoritelerince kontrol edilmeli; bilimsel olmayan bilgiler içeren, toplumu yanlış yönlendiren haberler engellenmelidir.

**Anahtar Kelimeler:** Gazeteler, internet, aşı reddi, aşılama, sağlık iletişimi.

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## Introduction

The simplest definition of communication is the process of transferring information from the source to the target. Health communication, which connects communication and health fields, is the application of communication rules and strategies to the practices aiming to improve health. All health-related information exchanges between individuals, between the physician and the patient, and through the mass media are handled within the framework of health communication (1).

The use of the internet in mass media is increasing day by day because it is fast and easily accessible. In a previous study in our country, 94% of participants reported that they used internet at least once in their life for health information (2).

Vaccinations are one of the top health topics on the internet. Uncontrollability of the internet and its ability to reach large masses has turned into an opportunity for vaccination refusers. Misinformation about vaccines and vaccination, unscientific articles and superstitions on the internet are numerous. The top 10 websites listed for the 'vaccination' title in 7 search engines in the United States were reviewed, and 43% of these websites were found to be anti-vaccination sites (3). In the content of internet publications, there are claims most frequently about that the vaccines cause idiopathic diseases and weaken the immune system, the frequency of side effects of vaccination is hidden and routine vaccination programs have commercial concerns (4). Some articles, which link the development of diseases such as acquired immune deficiency syndrome (AIDS), asthma, autism, cancer, diabetes, fibromyalgia, leukemia, lupus and sudden infant death syndrome, to vaccination and its effects have been published (5). Internet sites have rejected biomedical and scientific facts, claiming that they advocated alternative medicine

practices instead of vaccination. They discussed in terms of security and efficacy, personal freedoms, conspiracy theories, alternative medicine and ethical contexts, and defended the idea of 'return to nature' (6).

One of the factors influencing vaccination acceptance was presented as the 'communication and media tools' in the report of anti-vaccination studies of World Health Organization (WHO) (7).

Although anti-vaccination is not a new issue for the world, it has begun to attract attention especially since 2010 in our country (8). According to the statements given by the Ministry of Health, while the number of families refusing to vaccinate their children in 2011 was only 183, it was 980 in 2013, 5400 in 2015, 12000 in 2016 and finally 23,000 in 2017 (9).

The widespread use of the Internet has caused traditional journalism to evolve into internet journalism. Thanks to the developing communication technologies, internet news reporting has become the easiest accessible news report (10).

Although it is thought to be more reliable, there are many news, columns, interviews, etc. on the internet pages of newspapers that are far from science about vaccines, which have wrong content and do not even mention the source. As a matter of fact, in a study conducted in our country, the families who refused to vaccinate their children were asked why they made this decision, and 27.3% of the families answered as 'news in the newspapers' (11).

Health news emerges as an important phenomenon in terms of both reflecting the point of view of the society about the health system in the country and having an active role in determining this view (12). It is known that newspaper news is an important cause of the increasing anti-vaccination in our country. However, there has been no

content or number review about the news.

The aim of this study is to conduct a qualitative and quantitative analysis of

news reports on vaccines and vaccinations and to enlighten the interventions that will prevent the misinformation of the society in this way.

## Material and Method

The study is a descriptive, observational research. The necessary permission and the approval from the ethics committee for the study were obtained (Report Number: 2018/23-14). It was decided to use the news of the 3 most visited internet newspapers in the study. Later, the 3 most visited internet newspapers were found using Alexa Company's data (13) because there is no official source for the most visited internet sites, and the data of Alexa is also used in international literature. According to this, the 3-year news of the most visited newspapers, Sabah, Hurriyet and Milliyet, between 23.09.2015 and 23.08.2018 were examined. The archives of the newspapers were scanned using the words 'vaccines' and 'vaccination'.

A total of 726 news was obtained. All of these 726 news reports were reviewed, and it was determined that the main topic of 286 news reports was related to vaccines and vaccination. The information belonging to these 286 news reports were recorded on data collection forms. The data collection form includes the information such as 'the name of newspaper', 'publish date and season', 'type of the news', 'whether the name of the person who made the news was given or not', 'whether the source of the news was given or not', 'the topic/topics of the news', 'whether there was an ad in the news or not', 'positive/negative message of the news' and 'compatibility of the news with the scientific data'.

## Statistical Analyses

After the data collection phase, data analysis was performed using SPSS 22.0 package program. Descriptive data were presented using numbers and percentages. Pearson's Chi-Square test was used to compare categorical data. A value of  $p < 0.05$  was considered statistically significant.

In addition to this, for the qualitative part of the study the content of the news incompatible with scientific data was presented one by one, and the incompatibility with the literature was stated.

## Results

For the study, all of the 726 news reports published between 23 September 2015-23 August 2018 were examined; 286 news with the main topic about vaccines and vaccination were included into the study.

78 of these 286 news reports (27.3%) were published in Hurriyet, 73 (25.5%) in Sabah and 135 (47.2%) in Milliyet (Table 1).

When analyzed according to the type of the news, it was determined that 265 (92.7%) news reports were current news /information, 19 news (6.6%) were columns, and 2 news (0.7%) were interviews. In 63 of the news (22%) name of the reporter who made the news was given, in 231 of the news (80.8%) the source was indicated (Table 1).

When the distribution of the news according to the years was examined, it

was observed that there were 30 news (10.5%) in 2015, 71 news (24.8%) in 2016, 102 news (35.7) in 2017 and 83 news (29.0%) in 2018 (Table 1).

When the distribution of the number of the news was examined according to the months, it was seen that the number of news was highest in April, followed by January, December, October and November, respectively (Figure 1).

When the frequency of the news was examined according to the topics, it was seen that the most common topics were 'benefits of vaccination', 'adult

vaccination' and 'childhood vaccination', respectively (Figure 2). (Influenza vaccination for adults, pregnancy vaccination, vaccination for risk groups were collected under the heading of adult vaccination).

When the contents of the news were examined, it was observed that 212 of the 286 news (74.1%) had a positive message about vaccination; 10 (3.5%) had a negative message; 64 news (22.4%) did not have any positive or negative message (Table 1).

**Table 1** : Characteristics of the news by the name of newspapers

<b>Newspaper</b>	<b>Number of News</b>	<b>%</b>
Hurriyet	78	27.3
Sabah	73	25.5
Milliyet	135	47.2
<b>Type of the News</b>		
current news /information	265	92.7
columns	19	6.6
interviews	2	0.7
<b>Name of the Reporter</b>		
Yes	63	22.0
No	223	78.0
<b>Source</b>		
Yes	231	80.8
No	55	19.2
<b>Years*</b>		
2015	30	10.5
2016	71	24.8
2017	102	35.7
2018	83	29.0
<b>The message of the news</b>		
Positive	212	74.1
Negative	10	3.5
None	64	22.4
<b>Total</b>	<b>286</b>	<b>100.0</b>

\*Last 3 months of 2015; the first 8 months of 2018 are examined.

When it was examined whether the topics of the news have changed according to the years, it was found that the number of news about "anti-

vaccination" made in 2018 was statistically significant compared to other years ( $p=0.001$ ) (Table 2).

**Table 2:** Comparison of the number of news on anti-vaccination according to years.

Years	Anti-vaccination			Total
		Yes	No	
2015	n (%)	1 (3.3%)	29 (96.7%)	30 (100.0%)
2016	n (%)	8 (11.3%)	63 (88.7%)	71 (100.0%)
2017	n(%)	4 (3.9%)	98 (96.1%)	102 (100.0%)
2018*	n (%)	30 (36.1%)	53 (63.9%)	83 (100.0%)
<b>Total</b>	<b>n (%)</b>	<b>43 (15.0%)</b>	<b>243 (85.0%)</b>	<b>286 (100.0%)</b>

\*The group of difference :  $p=0.001$

When the news reports were analyzed according to their message and consistency with scientific data, it was observed that the news having a negative message were more incompatible with

scientific data compared to the news without positive or negative message and the news having positive message ( $p=0.001$ ) (Table 3).

**Table 3:** Comparison of news messages and their compatibility with scientific data

Incompatibility with scientific data		The message of the news			Total	
		Yes	Positive	Negative		none
	Yes	n	6	7	2	15
		%	40.0	46.7	13.3	100.0
	No	n	206	3	62	271
		%	76.0	1.1	22.9	100.0
<b>Total</b>	n	212	10	64	286	
	%	74.1	3.5	22.4	100.0	

$p=0.001$

### Analysis of the News Contents in Terms of Compatibility with Scientific Data

The contents of the news were examined in terms of their compatibility with scientific data, and 15 news (5.2%) were found to contain incompatible information with scientific data.

#### **Autism**

In the news where the words of someone who was said to be a biomedical specialist:

'I found a hypothyroid problem almost all of the women having children

with autism. Fluoride used in toothpaste affects the brain negatively. Radiation, toothpaste, GM foods, especially mercury-containing vaccines cause autism.' The above statements were included.

Inan, M. (May 1, 2018). Claim of Chlorodioxide in the Treatment of Autism. Sabah. <https://www.sabah.com.tr/>

In another news:



The statement 'Heavy metals, industrial foods, the air we breathe and even the vaccines we use can be seen as suspicious in the sense of autism' was present.

Bati, S (March 17, 2016). Are we on the edge of Autism Epidemic? Hurriyet. <http://www.hurriyet.com.tr/>

After the decision of the Constitutional Court, in the news the father said: 'My first child who I got vaccinated got autism. Therefore, I did not make my second child vaccinated.'

Kovan, N (December 29, 2015). The decision of the Constitutional Court for the father who did not have his baby vaccinated. Hurriyet. <http://www.hurriyet.com.tr/>

However, in the website of the Centers for Disease Control and Prevention (CDC) and in a referenced article on this website, it was clearly stated that vaccines are not associated with autism risk (14,15).

### **Multiple Sclerosis (MS)**

'Dr. Ayse Sagduyu Kocaman tells us that besides certain genetic features, vitamin D deficiency, viral infections, vaccines, cigarettes, stress, excessive salt consumption are among the triggering causes of MS.'

(May 29, 2017). Excessive stress increases MS risk. Milliyet. <http://www.milliyet.com.tr/>

In the news, vaccines were clearly stated to cause MS development, but in the majority of the investigations, there was no relationship between vaccines and MS development (16,17).

### **Alzheimer's Disease**

Prof. Dr. Canan Efendigil Karatay said the following statements in the news: 'The elders should not have influenza vaccination. Because it contains aluminum. Aluminum also causes Alzheimer's Disease, you cannot inject aluminum into the human body.' (January 27, 2017). Prof. Dr. Canan Karatay literally flared up! "I speak the way I want!". Milliyet. <http://www.milliyet.com.tr/>

However, there is no aluminum in the influenza vaccine (18). It is known

that the aluminum, used in other vaccines, is much lower than the dose that can harm human health (19).

### **Egg Allergy**

The statement 'people should not have influenza vaccination in the case of egg allergy' is present in many news. However, CDC indicates that egg allergy is not a contraindication for influenza vaccination (20).

'Who should not get?' (For influenza vaccination)

#### **- People with egg allergy'**

Ozbey, S. (January 16, 2016).

Are We Ready to Fight Against Influenza? Hurriyet.

<http://www.hurriyet.com.tr/>

'Vaccination is not recommended to infants younger than 6-month-old, *people with egg allergy*, people with severe life-threatening allergies to any component of the vaccine and people who developed Guillian-Barré syndrome within 6 weeks after the previous vaccination.'

(September 18, 2017) When should flu vaccination be done? Who should get flu vaccine? Sabah. <https://www.sabah.com.tr/>

'Dr. Rezan Harman Gunerkan stated that if you have been vaccinated before and allergies have developed, if you have allergies to eggs and if you have high fever you should not be vaccinated and it should be postponed.'

(October 5, 2017). Influenza Alert before the Upcoming Winter. Milliyet. <http://www.milliyet.com.tr/>

'Those having egg allergy, those having allergies to vaccination, sick people with fever,  $\geq$ 4-month pregnant people, babies younger than 6 months and those who had influenza after previous vaccinations should not be vaccinated.'

(October 3, 2017). Karaarslan; "We recommend that people in the risk group be vaccinated for Influenza". Milliyet. <http://www.milliyet.com.tr/>

## Influenza Vaccine

In the news sourced by the pulmonologist Prof. Dr. Ahmet Rasim Kucukusta,

'... **The US Centers for Disease Control and Prevention (CDC), which had said that children should be vaccinated until this year, has announced that there is no benefit of this vaccination.** The statement **'When we look at the mechanism of action of influenza vaccines, it is clear that it is nonsense to expect a benefit from it'** is included.

Demir, N. (September 15, 2016). Influenza Vaccines are ineffective. Hurriyet. <http://www.hurriyet.com.tr/>

However, the CDC's Committee on the Recommendation of Immunization Studies suggests that the annual influenza vaccine is a safe and preventive health action that benefits all age groups. However, certain people have a higher risk for influenza complications, including people aged 65 years and older, children younger than 6 months, pregnant women, and people of any age with certain chronic medical conditions (21).

In a news report, Pharmacology Expert Prof. Dr. Mehmet Isbir said:

'Influenza vaccination alone is not enough for protection against influenza. **Vaccines are made against one species.** For example, the vaccine is made according to H1N1, the H1N2 virus emerges before it doesn't expire'.

(January 10, 2018) Prof. Dr. Isbir said: 'Influenza vaccination alone is not enough for protection against influenza.'

Milliyet. <http://www.milliyet.com.tr/> However, flu vaccines are developed against 3 or 4 viruses (22).

## Hepatitis B Vaccine

In a news report, many side effects related to hepatitis B vaccine were mentioned. However, CDC reports that there is no chronic disease that is scientifically associated with Hepatitis B vaccination. For side effects of the vaccine, it is said that there may be pain at the vaccination site and fever at 37.7 °

C and above, and a severe allergic reaction may develop one in million (23). 'The side effect can be one of the following:

a) *Skin diseases: Deep hardening zones on the skin, red rashes on the face, small hard nodes and ring-shaped formations on the back of the hand.*

b) *Nerve diseases: Multiple sclerosis, loss of myelin sheaths of nerves, progressive paralysis of Guillain-Barre type.*

c) *Immune diseases: Chronic fatigue, vasculitis called polyarteritis nodosa.*

d) *Rheumatism (arthritis, rheumatoid arthritis).*

e) *Eye disorders:*

f) *Blood diseases: The state of the blood structure of the bone marrow (aplastic anemia).*

g) *Hepatitis:*

h) *Diseases that can not be diagnosed. '* (October 16, 2015): Side effects of Hepatitis B Vaccine. Sabah. <https://www.sabah.com.tr/>

## Pregnancy

In a news report:

The statement 'You may be vaccinated against influenza before the time of your pregnancy to avoid having influenza during pregnancy' is present, but CDC emphasizes that pregnant women may have influenza vaccination during all pregnancy periods and evidence about no vaccination during the first trimester is inadequate (24).

(October 12, 2015). How does the Influenza end in Pregnancy. <https://www.sabah.com.tr/>

Contrary to the news that diphtheria-pertussis-tetanus vaccine was given to pregnant women, adult type tetanus-diphtheria vaccine is given to them (25).

'Pregnants preferably diphtheria-pertussis-tetanus vaccine between 27 and 36 weeks ...' Ersan, M. (December 17, 2016). Adult Vaccine to Frequent Travelers. Hurriyet.

<http://www.hurriyet.com.tr>

## Discussion

The study showed that newspapers publish a lot of news about vaccine and vaccination on the internet and that the number of news has increased over the years. The number of news made in the first 8 months of 2018 exceeded the total number of news made in 2016.

The reason for more news in April is that April 24-30 is the vaccination week. Apart from April, the reason for the increase in the frequency of the news in the autumn-winter months was the influenza vaccine news remaining on the agenda. When the news was evaluated in terms of the topic, it was determined that the news about "anti-vaccination" increased with time. The issue of anti-vaccination was frequently on the agenda after the decisions of the Constitutional Court about the issue. The Constitutional Court decided in favor of the two families refusing to apply infantile period vaccination upon individual applications, and that the compulsory vaccination would violate the right to the protection and development of the material and spiritual existence guaranteed under Article 17 of the Constitution. The Constitutional Court has made this decision by considering that there is no mandatory regulation on the compulsory vaccination application foreseeable. This decision has made a legal basis for families refusing to vaccinate their children, and the issue has been frequently discussed in public. A study in Canada also examined anti-vaccination on the internet sites and found that 88% of internet sites have 'personal freedoms' as arguments (6).

When the news was examined in terms of the messages they contain, it was observed that most of them have positive messages about vaccines and vaccination. Negative messages were found to have more inconsistency with scientific data.

When news containing incompatible information with the

scientific data was evaluated in terms of content; it was observed that the issue of 'autism', which has been spoken since the beginning of the vaccination debate, is still on the agenda. Despite the widespread literature showing that autism is not associated with vaccination, studies both in our country and in the world show that one of the bases of anti-vaccination discourse on the internet continues to be autism (5,6).

When the contents of the news were examined, another one of the prominent topics became MS and vaccines. Especially, MS associated with hepatitis B vaccine led to controversy especially in France. Although it was shown that hepatitis B vaccine was not related to MS development, parents refused hepatitis B vaccination for their children, and an increase in acute hepatitis B infections was observed in children (26). One of the news that was also examined in this study associated Hepatitis B vaccine with many chronic diseases, but there is no scientific basis for this information (23).

Influenza vaccination is among the topics that come to the agenda. Influenza vaccination is a topic of discussion both in terms of efficacy and content. In this study, it was noticed that the sources of the news made against the vaccination were medical doctors. In a news report, pulmonologist Prof. Dr. Ahmet Rasim Kucukusta said that influenza vaccination is unnecessary and is no longer recommended by the CDC, but the CDC continues to emphasize the need for vaccination and suggests vaccination (21). In a previous study on influenza vaccination only 5 (4.3%) health workers were vaccinated and 110 (95.7%) were not vaccinated; 59 (51.3%) of them did not have any influenza vaccination throughout their life; and it was found that the most important reason for not wanting to be vaccinated was not believing in the necessity of vaccination (27). This showed that there is doubt about the



necessity of influenza vaccination in society. One of the news examined in this study was about the content of the influenza vaccination. In the news, Prof. Dr. Canan Efendigil Karatay, who frequently involved in different health topics with interesting discourses, claims that influenza vaccine has aluminum in its content, which leads to Alzheimer's Disease. Karatay has also started a discussion with this claim and has received reaction from both the Ministry of Health and the various branches of the

physicians, and a criminal complaint has been filed against her because Karatay's claim has no scientific basis, and there is no aluminum in the content of influenza vaccine. After this discourse of Karatay, many informative reports have been made and in 2018 a lot of news about vaccination has become a reason of Karatay's explanation. Also the Ministry of Health has informed the society from the internet address [asi.saglik.gov.tr](http://asi.saglik.gov.tr) after the increasing debate (28).

## Conclusion

As a result of the study it was seen that although most of the newspaper news continues to have positive messages and to be compatible with positive and scientific information, the news with negative messages and no scientific support continues to be published. Anti-vaccination is a complex, ever-changing global problem and there is no single strategy to fight against it. However, information should be one of the essential steps in any intervention

aimed at increasing vaccine coverage (29,30). Newspaper news is also an effective source of health communication because it is an important information source for the society. Internet journalism should be used more frequently in transfer of health information to the society. However, news should be checked by health authorities; non-scientific and misleading information should be prevented.

## Limitations

The study covers only internet newspapers. It is also necessary to examine the visual news channels, other internet sites and social media content in order to demonstrate the impact of communication and media tools on anti-vaccination.

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