GOOGLE TRENDS İLE YAPILAN AVIAN INFLUENZA SORGULAMALARINDA İLGİLİ KONULAR BAŞLIĞININ SEÇİLMİŞ ÜLKELERE GÖRE DEĞİŞİMİNİN DEĞERLENDİRİLMESİ

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EVALUATION OF CHANGE OF RELEVANT TOPICS ACCORDING TO SELECTED COUNTRIES IN AVIAN INFLUENZA QUESTIONS WİTH GOOGLE TRENDS

Berrin ŞENTÜRK[*]

Öz

Bu çalışmada, google trend verileri kullanılarak salgın algısının sosyal ve toplumlar arası farklılıkları araştırılmıştır. Bu amaçla, kuş gribi hastalığı seçilmiş ve "Avian Infuenza, Bird Flu ve Kuş Gribi" terimleri için "ilişkili konular" terimi değerlendirilmiştir. Çalışmada 01.01.2004-11.10-2019 dönemi için Türkiye, İngiltere, Çin ve Vietnam gibi bazı ülkelere ait google trends eğilimleri araştırılmıştır. Seçilmiş ülke verilerinin değerlendirildiği çalışmada internet verileri kullanılarak farklı ülke insanlarının bu hastalığa ilişkin genel arama eğilimleri frekans dağılımı dikkate alınarak değerlendirilmiştir. Dört ülke verisine ait arama terimlerinin ilgili konu başlıklarının değerlendirme sonuçları, hastalığın yüksek frekansa sahip konu başlıkları %26.25 oranında hesaplanmıştır (21/80). Düşük frekansa sahip konu başlıkları %18.75oranındadır (15/80). Bu durum hastalık konusunda bu ülkeler arasında algı düzeyinin önemli ölçüde değiştiğini düşündürmektedir. Çalışmada yüksek frekansa sahip konu başlıklarının kamu tarafından doğru bilgiye ulaşımın sağlanmasında linklerle desteklenmesinin ve hastalığa ilişkin bilginin yer aldığı dikkat çekici reklamların bu konu başlıkları ile ilişkili sayfalarda yer almasının önemli olduğu kanaatine varılmıştır.

Anahtar Kelimeler: Avian Influenza, Google Trends, Toplumsal Bilinç, İlişkili Konu.

Abstract

In this study, social and inter-communal differences of epidemic perception were investigated using the google trends data. For this purpose, the avian influenza epidemic was chosen and key terms of "Avian Influenza, Kuş Gribi, and Bird Flu" related topics were evaluated. Some countries like Turkey, United Kingdom, China, and Vietnamese google trends data in the period of 01.01.2004-11.10-2019 were searched. In the study where country data were evaluated, general search tendencies of people from different countries were evaluated by using internet data considering frequency distribution. The results of the evaluation of the relevant topics of the search terms of the four country data, the disease's high-frequency topics were detected at a rate of 26.25% (21/80), while 18.75% of the low-frequency topics (15/80) were determined. This suggests that the level of perception among these countries varies significantly. In the study, it was found that it is important to support the high frequency topics with links in order to reach the right information by the public and it is important that the prominent advertisements containing the information about the disease appear on the pages related to these topics.

Keywords: Avian Influenza, Google Trends, Related Topic, Social Consciousness.

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[*] Doç. Dr, Department of Livestock Economics and Management, Faculty of Veterinary Medicine, Samsun, Ondokuz Mayıs University, Samsun, Türkiye, ORCID: 0000-0002-2540-6491

1. INTRODUCTION

Avian Influenza (AI) is an infectious disease of different poultry species. Sometimes mammals, and therefore humans, may develop this disease. The disease has subtypes such as H5N1, H5N2, H5N8, H7N8 and H7N9. Of these, H5N1 and H7N9 are more widely known to people because of their serious and lethal consequences (OIE, 2019). Globally, 861 cases of Avian Influenza H5N1 Virus were reported in 17 countries between January 2003 and June 2019, of which 455 resulted in death (WHO, 2019). On the other hand, since the beginning of 2013, 1,568 H7N9 subtypes of human infections have been reported by different laboratories (WHO, 2019). This new type of disease has shown exits involving many different countries. It is reported that the emergence of people during and after their travel raises deep concerns about the virus and its transmission (http://www.who.int/influenza/human_animal_interface/influenza_h7n9/).

A high number of deaths have been identified in China and Vietnam in cases of Avian Influenza caused by H5N1 virus on a global scale. It has been reported that between 2003 and 10 October 2019, 180 of the human cases were confirmed by laboratory results and 95 resulted in death (WHO, Western Pacific Region, Avian Influenza Weekly Update Number 710). In these countries and Turkey in disease studies are planned to investigate as keywords in google trends related topics. The height of the work in Turkey and the United Kingdom as well as of human cases in the selection of a limited number of countries where human cases in this country have been preferred because of the country's election.

Internet facilities are data sources that allow the storage of large amounts of long-term information. This situation creates data opportunities that will eliminate the problem of sample size in statistical terms by using this scientific knowledge. One of these possibilities is google trends data from search engines. The use of internet data in diseases has been increasing for the last ten years (Dugasve et al., 2013; Althouse et al., 2011; Ginsberg et al., 2009). In other news, a survey conducted in 2018 in Turkey in the field of health was used google trends (Yıldız, 2018). Google trends provides 15-year time series data for the searched keywords for any disease.

This study aimed to identify human cases of Avian Influenza in the number of deaths is high on the basis of the number of countries with data in Turkey google trends emerged in the interrogation of Avian Influenza for the difference. In the study conducted by examining the related topic and related question headings, the awareness of the people was tried to be determined and by using these data, it was tried to be guided in the development of disease management plans.

Today, using computer technology, which provides processable and manageable information for a large number of people, it is of utmost importance not to identify people's disease awareness and to increase this awareness by managing them and to use these opportunities in the control of diseases. Disease awareness in selected societies can be evaluated by analyzing the search data made by people from different countries on the same disease, taking into account a certain time period. Thus, programs that will increase the effectiveness of disease protection and control can be developed and implemented in line with the deficiencies determined using the results obtained. To this end, countries where a high perception of human deaths in this study (China and Vetna), perception developed countries (United Kingdom) and Turkey data are evaluated.

2. MATERIAL AND METHODS

The research question was determined as "to what extent people's perception of disease about "Avian Influenza" disease in different countries are similar and / or different from each other". Frequency distributions of Google trends data will enable us to learn about disease awareness of individuals from different countries. The low number of low-frequency off-topic questions will strengthen this judgment.

Şentürk

In this study, "Avian Influenza", "Kuş Gribi" and the "Bird Flu" have to google trends of 10.16.2019 dated Turkey, the United Kingdom, data containing China and Vietnam started from January 2004 to June 2019 ranges were used (https: // trends.google.com.tr/trends). In this study, human cases used in country selection were determined by using World Health Organization data (https://www.who.int/docs/default-source/wpro---documents/emergency/surveillance/avian-influenza/ai-20191010.pdf?sfvrsn=30d65594_38; Access: 16.10.2019).

In the google trends queries of selected countries dated 16.10.2019; In the study, the data obtained for the keywords "Avian Influenza", "Avian Influenza, Kuş Gribi and Bird Flu" which express the same disease were analysed by using "related topic" headings. Selected from four countries (Turkey, United Kingdom, China and Vietnam) 80 titles in a total of 10 subjects were included in the study for two keywords. In the study, the common headings of 4 country data and the frequency values of different headings were calculated for Avian Influenza" and "Kuş Gribi" or "Bird Flu" search headings only. High and low frequency topics were determined and the results were interpreted as to what contribution could be made to future disease control. The first 5 rows for high frequency calls are given in the study, while all low frequency calls are presented in the study. The data were presented by making a distinction in the form of low-frequency topics that are technically related to the disease and the topics that are associated with the disease.

3. RESULTS

In the study conducted, the frequency distribution of the topics obtained by bringing together the related topics of Avian Influenza, "Bird Flu" or "Bird Flu" search terms is presented in table 1.

Table 1. Frequency distribution of the topics obtained by combining the relevant topics of the search terms "Avian Influenza", "Kuş Gribi" or "Bird Flu" (21/80).

Related Topic	Frequency
Virus-infectious agent type	5
Influenza A virus subtype H5N1-subject	4
Disease- subject	4
Vaccine-subject	4
Symptom-subject	4

Source: Calculation with Google trends data

The frequency distribution of the searches related only to the Avian Influenza term in the related topics is presented in Table 2.

Table 2. Frequency distribution of related topics in Avian Influenza search term (14/40)

Related Topic	Frequency
Disease-subject	4
Influenza A virus subtype H5N1-subject	3
Influenza- subject	3
Influenza A virus-virus	2
Bird-Animal	2

Source: Calculation with Google trends data

The frequency distribution of the related topics in the term Bird Flu or Bird Flu is given in Table 3.

Table 3. Frequency distribution of related topics in the term "Kuş Gribi" or Bird Flu (14/40)

Related Topic	Frequency
Virus-infectious agent type	3

Şentürk

Disease-subject	3
Swine flu-subject	3
Symptom-subject	3
H1N1 virus	2

Source: Calculation with Google trends data

Finally, in the study of google trends data, the low frequency titles of the related topics of Avian Influenza, Avian Influenza or Bird Flu search terms and the topics that are technically relevant and considered off-topic are presented in Table 4.

Table 4. In the Google Trends data, the low-frequency headings of the relevant subject headings of the Avian Influenza, "Kuş Gribi" or "Bird Flu" search terms and the headings that are technically relevant and considered off-topic (15/80)

Related Topics	Frequency	Related	Irrelevant
Sudden outbreak-subject	1	X	
A country in China-East Asia	1	X	
World Health Organization-subject	1	X	
Hemaglutinin-subject	1	X	
HTML5-Video game engine	1		X
Cell-subject	1	X	
Characterization -subject	1	X	
Husband-subject	1		X
Comedy –sort of film*	1		X
Room-subject	1		X
Death-subject	1	X	
Pathogenicity -subject	1	X	
Van lake monster-subject*	1		X
Van lake- A lake in Turkey *	1		X
Van-subject*	1		X

Source: Calculation with Google trends data

In the study, when technically low-frequency subject headings are divided into two categories as subject-related and non-subject low-frequency searches, the proportional distribution of these searches constitutes 46.6% (7/15) of non-subject searches, and 57.1% (4/7) it was found that from Turkey. In the calls that make up 18.75% (15/80) of the total calls, the non-subject search rate is 8.75% (7/80).

4. CONCLUSIONS and RECOMENDATIONS

The study suggests that the internet opportunities in the information technologies of the age will create important opportunities for disease protection and control in the field of health in the future. The tools of search engines such as google trends provide big data opportunities in determining human tendencies in animal diseases and zoonoses, and good use of this field creates an important opportunity not only for countries but also for sustainable health practices on a global scale. With the help of multidisciplinary studies, this information source will be used more effectively and technology and health information will be brought together to ensure that human resources reach accurate and reliable information.

Şentürk

Disease control requires a high public cost. Access to accurate and reliable information is extremely important as the Internet is one of the first tools used to make information easy and accessible. The public has an important responsibility for information. Since the Internet is an important source of information, the public should consider this area well.

The data of this study showed that the general awareness of Avian Influenza, a global disease, was 26.25% (21/80), and 18.75% (15/80) had low perception levels. Firstly, there should be consensus on the value of an acceptable reasonable rate of awareness in epidemic diseases. This rate will be different for each disease, for the initial stage and for the subsequent processes. Achieving the desired level of these rates within certain time intervals and uploading more information to keyword pages related to advertising, games, or other methods to be determined will create an important opportunity for combating diseases.

On the other hand, the use of public links with accurate and important information about the disease, the development of different applications designed for age groups such as visual perception, and providing this information with the right content will provide important opportunities in disease control.

In the study, it was interpreted that low frequency ratio was not sufficiently comprehended the importance of the subject in the society. In such cases, multi-faceted assessments should be made by the public, and all necessary measures should be taken to raise awareness and be informed with all kinds of resources available.

As a result, in the study, the frequency distributions of google trends data and the related topics for epidemic diseases were calculated and ways to benefit from this opportunity to raise the awareness of the disease on selected country results were tried to be put forward.

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