Digital Source Youtube; Evaluation of Covıd-19 Vaccine Rejection Videos

Dijital Kaynak Youtube; Covid-19 Aşı Reddi Videolarının Değerlendirilmesi

Ayşegül Erdoğan[1], Muhammed Mustafa Beyoğlu[2], Levent Çevik[3], Elif Beyoğlu[4]

ABSTRACT

Objective: Vaccine rejection is an important issue affecting human health. As social media platforms are the easiest and most accessible means of accessing information on health, their use has increased significantly. YouTube, is a frequently used video source on health at the global level. We aimed to evaluate the quality of the most watched YouTube videos for COVID-19 vaccine rejection.

Methods: The key terms 'COVID vaccine rejection', 'COVID vaccine side effect', 'COVID vaccine refuse' was used for the videos. The reliability of the videos was assessed using the modified DISCERN scale. The Global Quality Scale (GQS) was used to evaluate the videos in terms of vaccine information. According to the results of the scale, the videos were divided into three groups as good/excellent quality, moderate quality and poor quality.

Results: The videos were 30.4% (n=21) of good/excellent quality, 34.8% (n=24) of moderate quality, and 34.8% (n=24) of poor quality. Good/excellent videos had a significantly higher median DISCERN score (p<0.01). There was no significant difference between daily median views (p=0.779), daily comments (p=0.148) and likes rates (p=0.551) according to video quality.

Conclusion: E-source; Youtube contains a significant amount of data on health-related services. However, some of this information is inaccurate or of insufficient quality. Physicians should warn their patients when using digital resources, direct them to the right resources, and demonstrate the importance of digital resource evaluation.

Keywords: COVID-19 pandemic, youtube, vaccine rejection.

ÖZET

Amaç: Aşı reddi, insan sağlığını etkileyen ve giderek artan önemli konular arasında yer almaktadır. Sosyal medya platformları sağlıkla ilgili bilgi edinmede en kolay ve ulaşılabilir araçlar olduğundan kullanımı önemli ölçüde artmıştır. Youtube, global düzeyde sağlıkla ilgili sık kullanılan bir video kaynağıdır. Çalışmamızın amacı, COVID-19 aşı karşıtlığı için en çok izlenen YouTube videolarının kalitesini değerlendirmektir.

Yöntem: Videolar için 'COVID vaccine rejection', 'COVID vaccine side effect', 'COVID vaccine refuse' anahtar terimleri kullanılmıştır. Videoların güvenilirliği değiştirilmiş DISCERN ölçeği aracılığıyla değerlendirildi. Videoların aşı bilgileri açısından değerlendirilmesinde Global Kalite Ölçeği (GKÖ) kullanıldı. Ölçek sonuçlarına göre videolar iyi/mükemmel kalite, orta kalite ve düşük kalite olmak üzere üç gruba ayrıldı.

Bulgular: Videoların %30.4'ü (n=21) iyi/mükemmel kalitede, %34.8'i (n=24) orta ve %34.8'i (n=24) düşük kalitede idi. İyi/mükemmel videolar, orta ve kötü kalitedeki videolardan anlamlı olarak daha yüksek medyan DISCERN skoruna sahipti (p<0.01). Diğer yandan, video kalitesine göre günlük medyan görüntülemeler (p=0.779), günlük yorumlar (p=0.148) ve beğenme oranları (p=0.551) arasında anlamlı bir fark yoktu.

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[1] Assistant Professor Doctor, Sutcu Imam University, Public Health, Kahramanmaras, Türkiye, ayseguldr@hotmail.com, ORDCID: 0000-0002-0548-5911

[2] Specialist physician, Onikisubat District Health Directorate, Familiy Medicine, Kahramanmaras, Türkiye, mstfbeyoglu@gmail.com, ORCID: 0000-0003-0367-5794

[3] Specialist physician, Tusba District Health Directorate, Familiy Medicine, Van, Türkiye, levo.cevik@gmail.com, ORCID: 0000-0003-3118-890X

[4] Assistant Doctor, Sutcu Imam University, Public Health, Kahramanmaras, Türkiye, elif_kirkan_@hotmail.com, ORCID: 0000-0002-3632-2728

Corresponding Author: Muhammed Mustafa BEYOĞLU

Sonuç: E-kaynak; Youtube birçok konuda olduğu gibi sağlıkla ilgili hizmetlerde de ciddi oranda veri bulundurmaktadır. Fakat bu bilgilerin bir kısmı yanlış veya yetersiz kalitededir. Hekimler kendi hastalarını dijital kaynak kullanırken uyarmalı, doğru kaynaklara yönlendirmeli ve dijital kaynak değerlendirmesinin önemini ortaya koymalıdır.

Anahtar kelimeler: YouTube, COVID-19 pandemisi, aşı reddi

INTRODUCTION

Working in the city of Wuhan, Dr. Wenliang Li reported that in late 2019, there were cases of treatment-resistant pneumonia of unknown cause. Shortly after, these cases were found to be caused by coronavirus and a COVID-19 epidemic was declared all over the world (Tsang,et al. 2021:77). The COVID-19 pandemic, which has one of the fastest publications in human history, has infected millions of people (Tsang,et al. 2021:77). With a new pandemic, the unknowns have begun to increase, and people have started to resort to many different ways to obtain information. One of them and the most important is digital platforms (Kocyigit-Akaltun 2019:63). In today's technology, it has become easy to access information in the digital environment. The use of internet resources and social media platforms to obtain health-related information has increased significantly. YouTube has become a major source of videos on health topics globally (Kocyigit,et al. 2020:49). There are a limited number of YouTube studies on vaccine rejection in the literature (Żuk P- Żuk P 2020:90). The purpose of our study is to evaluate the quality of COVID-19 vaccine rejection videos on the digital resource YouTube.

MATERIAL and METHOD

This work is of descriptive type. Keywords were determined among trend words by searching related videos on Youtube. The keywords 'COVID vaccine rejection', 'COVID vaccine side effect', 'COVID vaccine refuse' were used for Youtube (www.youtube.com) video searches. The videos were scanned on 01.07.2021. The videos were listed from highest to lowest view count. After examining the literature, the number of videos in our study was determined. The most widely used method in the literature is to create a fixed sample (Sampson, et al. 2013:47). The studies in the literature, it was seen that 90% of the videos were reviewed in the first 60 videos. Therefore, the first 60 videos were reviewed for each keyword (Rittberg, et al. 2016:29; Pons-Fuster, et al. 2020:84). Being in a language other than English videos, repetitive videos, other vaccine rejection videos different from the subject, videos containing commercial advertisements, videos with different content are among the exclusion criteria and were not evaluated.

Assessment of Quality

The Global Quality Scale (GQS) was used to measure the quality of the videos.The studies in the literature, GQS was used as a video quality measurement. GQS is a scale of 1-5 points used for digital resources. The researcher evaluates the usefulness and quality of the video in 3 categories. A video with 4-5 points is considered good/excellent quality, 3 points as moderate quality, 1-2 points as poor quality (Kocyigit, et al 2020:49; Rittberg, et al. 2016:29; Pons-Fuster, et al. 2020:84; Tolu, et al. 2018:85). The scoring system in our study;

1 point videos; they are of low quality, not fluent, and unable to convey a lot of information, therefore not helpful for patients. In these videos, information that is not based on medical sources is presented and causes confusion in people. It creates dangerous situations in terms of health.

2 point videos; mostly of poor quality, limited in terms of people's use. Although there is a lot of wrong information in these videos, there is a small amount of correct information. However, there is a lot of misinformation throughout the video.

3-point videos; moderate quality and some necessary information is given at a sufficient level. The information in these videos is presented in a balanced way. Vaccination topics are not dominant, although they contain partial errors.

4 point videos; They are good quality, flow and useful videos. It mostly provides correct information, but there are minor shortcomings. The information presented is useful for patients and does not contain major deficiencies.

5 point videos; excellent quality. It is very useful for humans. The videos contain completely accurate information and are based on medical sources. The information is explained in detail with its sources (Bernard, et al. 2007:70).

The videos included in our study were evaluated by two experienced physicians. The kappa coefficient was checked for consistency among physicians. When there was inconsistency for the videos, a third doctor reviewed the video and the evaluation was completed.

Assessment of Reliability

Reliability of videos Charnock et al. using the modified DISCERN scale (Charnock, et al. 1999:05). The original version consists of 16 questions. The first 8 questions are about reliability, the next 7 questions are about quality assessment, and the last question is about general quality assessment (Charnock, et al. 1999:05). The modified DISCERN scale includes 5 questions;

- Is the video clear, concise and understandable?
- Are reliable sources of information used?
- Is the information presented balanced and unbiased?
- Are additional sources of information listed for patient reference?
- Are areas of uncertainty/controversy mentioned?

Questions are answered with yes or no. Yes is 1, no is 0 points. The scale is between 0 and 5 points. As the score increases, the reliability of the videos increases. The same scale was used for reliability in the literature (Charnock, et al. 1999:05).

Video Parameters

Video upload date, video duration, number of views, likes and comments are recorded for all videos. The number of views, comments and likes were calculated as daily / total.

Video Sources

Video resources were categorized into 6 groups: academic/university (1), physician (2), non-physician health personnel (3), TV-journalist (researcher) (4), independent user (5), health-related website (6) .

Ethical approval was not obtained as publicly available Youtube videos were evaluated in this study.

Coding of Video Content

Recorded whether the video addressed the following topics: COVID-19 vaccines, COVID-19 vaccine side effects, COVID-19 vaccine rejection, COVID-19 vaccine hesitancy and causes.

Statistical Analysis

SPSS 22.0 program was used in data analysis. Number, percentage, minimum, maximum and median values were used in descriptive statistics. The conformity of the data to the normal distribution was measured with the Shapiro-Wilk test. Kruskal-Wallis test was used for comparisons between groups. Inter-researcher consistency was assessed using the kappa coefficient. $P<0.05$ was considered significant.

RESULTS

Looking at 3 keywords, 180 videos were scanned and 69 of them were included in the study. Of these, 91 were not related to the topic, 14 were repetitive, 5 were in a language other than English, and one was an advertisement video, which was included in the exclusion criteria. After these videos were excluded, 69 videos were included in the research to evaluate our study.

The median duration of the videos included in the study was 191 (30-7.284) minutes, the median number of views

was 154,586 (201-2.405.020) and the median number of comments was 369 (0-31.871). The descriptive features of the videos are presented in Table 1.

Table 1. Descriptive features of videos

Video features	Minumum (min)	Maximum (max)	Median
Duration (seconds)	30	7.284	191
Wiew count	201	2.405.020	154.586
Number of comments	0	31.871	369
Total likes	0	57.000	577
Total dislikes	0	24.000	519

Considering the general quality level of the videos according to the GQS results, 39.1% (n=27) were high quality, 31.8% (n=22) moderate quality and 27.5% (n=19) poor quality. Kappa score agreement for physicians was 0.881. When we look at the video sources, 100% (n=2) of the videos uploaded by academicians/universities and 83.3% (n=10) of those produced by physicians are of high quality. 100% (n=2) of non-physician health personnel (n=2) and TV/ journalist(researcher) 36.3% (n=4) were of poor quality. The video quality distribution of sources is shown in Table 2.

Looking at the GQS and modified DISCERN results of the videos according to the users; The scores of academic/university and physician users were found to be high and there was a significant difference (p<0.05). There is no significant difference between users according to daily views, daily comments and daily like rates (p=0.610, p=0460, p=0.430) (Table 3).

High quality videos had the highest DISCERN score average. There is no significant difference in video quality in terms of daily views, daily comments and daily like rates (p=0.779, p=0.148, p=0.551). This situation is shown in Table 4.

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Table 2. The video quality distribution of sources, n (%).

Video source	Poor quality(%)	Moderate quality(%)	Good/excellent quality(%)	Total
Academic/University	0(0)	0(0)	2(100)	2
Physician	1(8.3)	1(8.3)	10(83.3)	12
Non-physician health personnel	2(100)	0(0)	0(0)	2
TV-Journalist(Researcher)	4(36.3)	5(45.4)	2(18.1)	11
Independent user	1(20)	3(60)	1(20)	5
Health releated website	11(30.5)	13(36.1)	12(33.3)	36

n: number, % percentage

Table 3. Like ratio, comments per day, views per day, DS and GQS of videos according to video source

Video source	GQS[a] Median (min-max)	DS[b] Median (min-max)	Views per day[c] Median (min-max)	Comments per day[d] Median (min-max)	Like ratio[e] Median (min-max)
Academic/University	4.5(4-5)	4.5(4-5)	951(2-1900)	2.5(0-5)	6(0-12)
Physician	4(2-5)	4(2-5)	1326(140-8175)	0.5(0-31)	11(0-83)
Non-physician health personnel	2(2-2)	2(2-2)	5118(1878-8358)	14.5(9-20)	83(27-139)
TV-Journalist (Researcher)	3(1-4)	3(1-4)	1037(1-13436)	23(0-254)	11(0-87)
Independent user	3(2-3)	3(1-4)	1385(12-3373)	0.5(0-20)	6(0-29)
Health related website	3(1-4)	3(1-5)	644(1-13730)	3(0-63)	2(0-325)

*Kruskal-Wallis Test

[a]p<0.05, [b]p<0.05, [c]p=0.610, [d]p=0.460, [e]p=0.430

DISCUSSION

In the 21st century, which we call the age of technology, internet use is available almost everywhere. Youtube is the most preferred video platform in its field in terms of being both free and reaching large audiences in the digital environment. An increase in the use of Youtube as a medical resource can be expected for the majority society in order to obtain information easily during the diseases and pandemic periods that concern the whole world. Youtube platform includes quality/useful videos as well as poor/misleading videos at the same time (Nason, et al. 2015:89; Esen, et al. 2019:29). False information spread due to poor quality/misleading videos during pandemic periods can increase anxiety and panic in society and cause undesirable results. For this reason, we think that scanning and evaluating Youtube-based information during the COVID-19 pandemic period will be beneficial for society. Looking at our results, less than half of the videos crawled for the 3 keywords were of high quality. High quality videos were uploaded by academics/universities and doctors. Those presented by TV/journalists and non-physician health personnel were predominantly poor-quality videos.

According to the GQS results, 39.1% (n = 27) of the videos were high quality, 31.8% (n=22) moderate quality and 27.5% (n=19) poor quality. As a result of the evaluation of English Youtube videos about the COVID-19 pandemic, Khatri et al. showed that 67% of them were useful (Khatri, et al.20220:16). Looking at the closest pandemics to date, 70.3% of Youtube videos in the Zika virus pandemic and 61.3% in the H1N1 influenza pandemic were found to be useful and of high quality (Pandey, et al. 2010:1; Bora, et al. 2018:20). In many studies other than the pandemic, it has been shown that the rates of high-quality videos on Youtube are low (Nicholas, et al. 2021:24; Villafañe, et al. 2018:15). The low rates in our study compared to other pandemic studies may be due to many factors. While the literature studies focused on a disease, in our study, the relationship between pandemic and anti-vaccination was targeted. We think that this situation affects the results. The video scanning in our study was narrower than the examples in the literature, and the use of subjective and different criteria in the evaluation of videos may be a factor in the difference in results.

The main source of high-quality videos is academics/universities and doctors, while low-quality ones are TV/journalists, non-physician health personnel and health-related websites. While universities were the main source of useful videos in the Zika virus pandemic, the source of low-quality videos was identified as independent users (Bora, et al. 2018:20). Contrary to our research, TV/journalists have been identified as a quality video source (Bora, et al. 2018:20). Khatri et al. reported that quality videos were uploaded by TV/journalists and low-quality videos were uploaded by independent persons (Khatri, et al.20220:16). In the study by Şahin et al., the videos of healthcare professionals were higher quality than the videos of independent individuals (Şahin, et al. 2019:13). Our study demonstrates the importance of video source when using Bora, et al. 2018:20). Again, in our study, the rate of follow-up may have been high due to the high number of non-physician health personnel compared to physicians and the fact that they were seen as knowledgeable people in the community.

The main topic of discussion in the videos was vaccine safety and mandatory vaccination. The fact that the public is indecisive about the benefit of the vaccine and low level of participation in the H1N1 pandemic supports the discussion (Sheena, et al. 2013:78). Another reason why this issue is on the agenda may be that it is a piece of interesting news for news agencies in almost all countries. The most important question in society after the COVID-19 pandemic is the effectiveness of the vaccines produced at a sufficient level? Considering the studies, it has been revealed that the vaccines are effective at a sufficient level, including new

YouTube to obtain health information. Academics/universities and physicians are known as high quality video sources. All the videos uploaded by academics/universities in our study were of high quality but few in number. Therefore, academicians/universities and physicians should be supported in this regard and encouraged to produce videos containing quality, objective medical information.

The other main issue is that misleading/poor quality videos are in the majority and may be viewed more. Although our results do not fully support this hypothesis, the results of the videos during the Zika virus and H1N1 pandemics were in this direction (Pandey, et al. 2010:1;

variants (Heath, et al. 2021; Polack, et al. 2020:03; Rogliani, et al. 2021:27; Chagla, et al. 2021:15). However, it is understandable that there is a discussion in the videos due to the substantial number of anti-vaccine people who offer various reasons due to information pollution.

The study has several limitations. Within the scope of the research, only videos in English were scanned. The first 60 videos at the time the videos were watched were evaluated. Although the videos are evaluated by more than one physician, the scoring is subjective and causes limitations in terms of research. In addition, our sample size can be considered as another limitation. Since a Youtube video search will be affected by past searches, the entire history search list has been cleared prior to research and the problem has been tried to be minimized.

Table 4. Like ratio, comments per day, views per day and DS of videos according to video quality

Video quality	DS[a] Median (min-max)	Views per day[b] Median (min-max)	Comments per day[c] Median (min-max)	Like ratio[d] Median (min-max)
Poor	2(1-3)	1357.5(1-9041)	5.5(0-254)	5.5(0-139)
Moderate	3(3-4)	659.5(1-13730)	3(0-58)	2(0-325)
Good/excellent	4(4-5)	1120(1-13436)	6.7(0-58)	11(0-87)

*Kruskal-Wallis Test
[a]p<0.01, [b]p=0.779, [c]p=0.148, [d]p=0.551
min: minimum, max: maximum, DS: Modified DISCERN Tool.

CONCLUSION

Although the number of high-quality videos was not small, low and moderate-quality videos were in the majority. In order to access the right information, it is necessary to prefer high-quality videos. Physicians, academics and universities should upload more videos to Youtube for users to access quality accurate information.

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