

Evaluation of the quality, reliability and content of YouTube™ videos related to the Crimean-Congo hemorrhagic fever

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Abstract. – OBJECTIVE: The production, use, and sharing of information in health-related fields are increasing at an exponential rate in this age. Because they are so common today, social media platforms have a big impact on people's opinions, habits, and decisions.

With this study, we aimed at testing the content, reliability, and quality of the videos about CCHF disease published on YouTube™ for patients and healthcare professionals, which people use for obtaining information.

MATERIALS AND METHODS: The data of this study were obtained by searching on YouTube™ on January 1, 2022, using the keywords "Crimean-Congo hemorrhagic fever". Google Trends was used to identify the most common search terms for Crimean-Congo hemorrhagic fever. Video reliability was evaluated by using the DISCERN tool and Global Quality Scale (GQS) was performed to evaluate video quality.

RESULTS: After the exclusion criteria, 75 videos were reviewed. Videos for healthcare professionals were more sufficient than videos for patients ($p=0.004$). DISCERN and GQS scores were higher in sufficient videos than in partially sufficient/insufficient videos ($p=0.000$ and $p=0.000$, respectively).

CONCLUSIONS: As YouTube is an important source of health information about CCHF, there is a need to increase the number of high-quality and reliable content for patients on YouTube™.

Key Words:

Healthcare information, YouTube™, Crimean-Congo hemorrhagic fever.

Introduction

In today's societies, where information is collected, rearranged, and disseminated, technology has increasingly been adopted as a communication tool and human-centered approach. It has a vital role in shaping societies futures.

The production, use, and sharing of information in health-related field are increasing exponentially in this age. People are getting the information they need in various ways, such as through school, printed publications, visual and audio media, and social media platforms. Since social media platforms are frequently used for obtaining health information, they significantly impact human attitudes, behaviors, and decisions^{1,2}.

While both high and low-quality health information have become available on social media platforms (SMP), few of them distinguish between reliable and unreliable sources of information. Individuals who would like to get information make their own decisions about the reliability of the source and the quality of the information.

"Misinformation" is information that contradicts the best scientific evidence available at the time, while "Disinformation" describes a "coordinated or deliberate" effort to spread false information in order to gain "money, power or reputation"³. These platforms allow misinformation and disinformation to spread faster and more widely than ever before. The Internet is increasingly used to access information about various of health conditions⁴. Online video sharing and social media platform YouTube™, one of the most popular sites used for sharing information of all types, has over 1 billion monthly active users⁵.

Crimean-Congo Hemorrhagic Fever (CCHF) is the most common tick-borne disease that can be mortal for humans due to the wide geographic distribution of its vector, the 'Hyalomma tick'. According to data⁶⁻⁹, 10,000 to 15,000 human infections occur due to CCHF every year. CCHF has recently spread to previously unaffected regions and countries, primarily affecting Africa, Asia, and Southern Europe¹⁰. The worldwide spread of CCHF, which is due to vertebrate host migration from endemic areas and climate

change, is a growing concern for many reasons, especially considering it is a mortal disease^{7,11}. Due to the rise in Europe, Turkey, and the Balkans, this virus is now a public health concern. Both health professionals and patients benefit from various information sources for CCHF, which has become a common health problem. One of the most essential information sources is YouTube™.

Considering the literature, there is no study evaluating the content, reliability, and quality of videos about Crimean Congo hemorrhagic fever published on YouTube™.

With this study, we aimed at testing the content, reliability, and quality of the videos about CCHF disease published on YouTube™ for patients and healthcare professionals, which people use for obtaining information.

Materials and Methods

The study data were obtained by searching on YouTube™ (available at: <http://www.youtube.com>) on January 1, 2022, using the keywords “Crimean-Congo hemorrhagic fever”. Google Trends was used to identify the most common search terms for Crimean-Congo hemorrhagic fever. “Relevance” was used as the default filter for YouTube™ searches. All selected videos were added to the YouTube™ library database for further analysis. Only videos in English were included in the study as it is considered a universal language by many countries worldwide. Cookies and history were deleted.

Video Review

Each video was evaluated and recorded for the following characteristics:

- The name of the video
- Universal Resource Locators (URLs)
- Total video time
- Total number of comments and likes
- Upload date

Out of a total of 190 videos reviewed, 90 videos in a language other than English, and 25 irrelevant videos were excluded from the video study. As a result, 75 videos met the inclusion criteria and were analyzed in more detail. The videos were analyzed blindly by infectious diseases and public health specialist, and any discrepancies between the authors were resolved by reconsideration and consensus. The scheme of selection of videos is given in Figure 1.

Evaluation of Videos

The videos were grouped according to the target audience of patients and health care professionals. Videos that met the inclusion criteria were evaluated for usefulness and categorized as sufficient and partially sufficient/insufficient. Public videos were evaluated regarding symptoms, transmission route, epidemiology, and treatment. If each parameter was deemed sufficient, 2 points were given, and if insufficient, 1 point was given. In total, 8 points were accepted as sufficient, 5-7 points partially sufficient, and 4 points insufficient. Evaluations were made in 2 categories: those which were sufficient and those which were partially sufficient and/or insufficient.

In the videos for health professionals, in addition to the videos for the public, symptoms, transmission route, epidemiology, treatment parameters, diagnosis and pathophysiology were evaluated. If each parameter was considered sufficient, 2 points were given, and if insufficient, 1 point was given. In total, scores of 6-7 were evaluated as insufficient, 8-10 as partially sufficient, and 11-12 as sufficient.

Video reliability was evaluated using the DISCERN tool. Each question was scored as yes or no, ‘Yes’ was scored as 1 as positive and ‘No’ as 0 as negative, and the total DISCERN score was evaluated between 0 and 5. Higher scores indicate greater reliability. Overall video quality was assessed using the five-point Global Quality Scale (GQS), which was previously used in many studies^{1,7,8} on YouTube™. Higher scores indicated better video quality.

Ethical Approval

Public YouTube™ videos were analyzed, and no human participants or animals were included in the study; therefore, ethical approval was not required, similar to other YouTube™ studies¹²⁻¹⁹.

Statistical Analysis

All statistical analyses were performed with IBM SPSS Statistics software (version 26.0, IBM Corp., Armonk, NY, USA). Inter-observer agreement was evaluated with Cohen’s kappa coefficient. Shapiro-Wilk test was performed to assess the normality of the data. Descriptive data were expressed as the number, percentage, mean and standard deviation. Categorical data “Target audience” was analyzed with Chi-square. While normally distributed data “DISCERN” and “GQS” were analyzed *via* independent samples *t*-test, not normally distributed “Number of

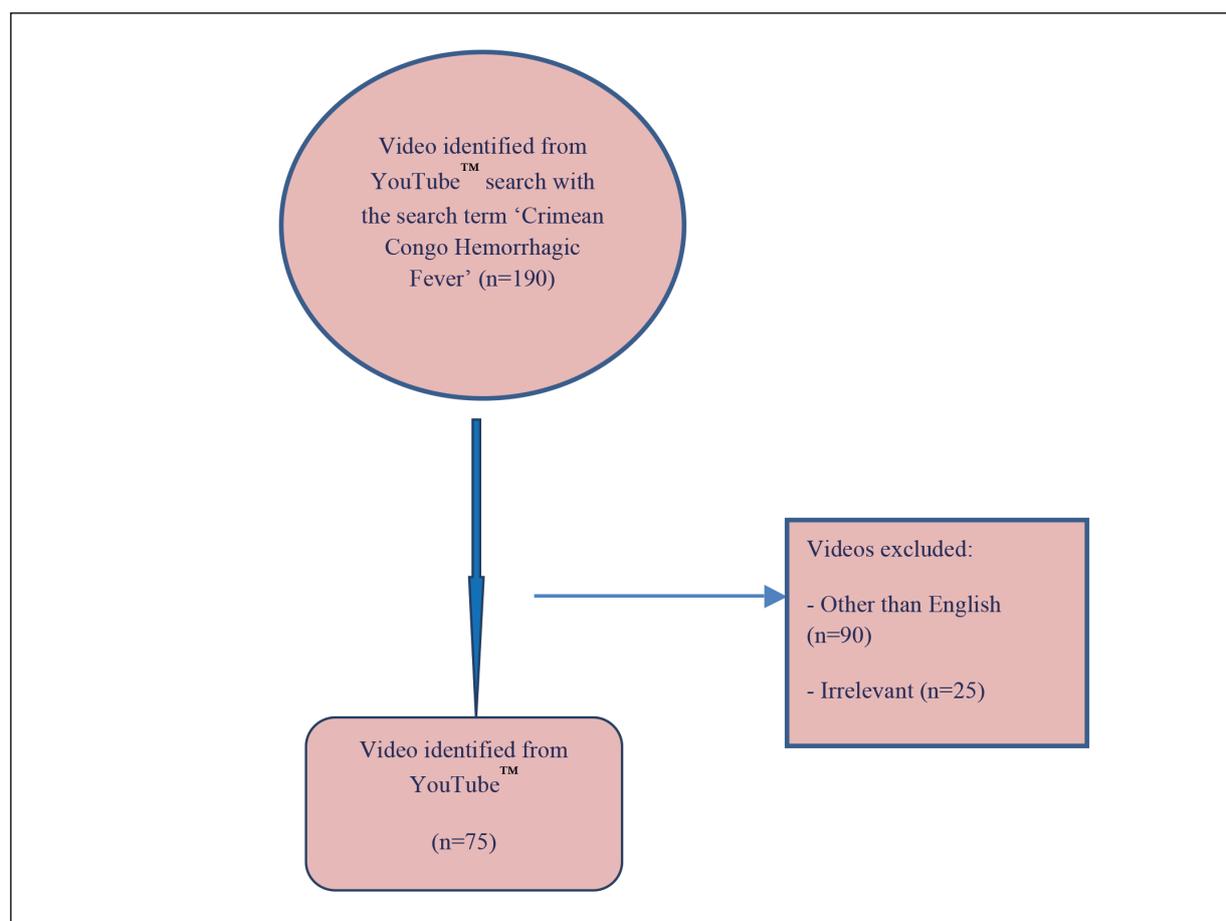


Figure 1. Scheme of the selection of videos.

views”, “Screen time”, “Number of likes”, and “Number of comments” were analyzed with Mann-Whitney U.

Results

Cohen’s kappa statistic indicating inter-observer agreement was 0.925 [95% confidence interval (CI): 0.883-1,000].

The duration of the videos was 9.7 (min/max, 0.17-63.31) minutes. The median number of views was 317 (min/max 0-32,372). 50.7% of the videos were for the public. The main features of the videos are summarized in Table I.

There was no significant difference between sufficient and partially sufficient/insufficient videos in terms of the average number of likes, clicks, and comments ($p>0.005$). The average number of views was higher for sufficient videos than for partially sufficient/insufficient videos ($p=0.010$).

DISCERN and GQS scores were higher in sufficient videos than in partially sufficient/insufficient videos ($p=0.000$ and $p=0.000$, respectively). Videos for healthcare professionals were more sufficient than videos for patients ($p=0.004$). Detailed characteristic of YouTube™ videos according to their usefulness is given in Table II.

Discussion

To our knowledge, this is the first study to test the accuracy and reliability of the content of YouTube™ videos on CCHF infection. In the literature, common steps are taken to evaluate health content on YouTube™¹⁷. However, there was no concrete method available, and there were many differences in the methods of each study. In our study, videos for health professionals were more sufficient than videos for patients as a source of health information about CCHF. It has been de-

Table I. Baseline features of the analyzed videos.

Variables		Videos (n=75)
Number of views		317 (0-32,372)*
Screen time (minutes)		9.7 (0.17-63.31)*
Target audience	Patients	38 (50.7%)
	Healthcare professionals	37 (49.3%)
DISCERN		3.00 (1-5)
GQS		3.00 (1-5)

*Data are presented as median (minimum-maximum) values.

terminated that sufficient videos offer higher quality and reliable content than partially sufficient/insufficient videos (higher DISCERN and GQS scores).

These findings were consistent with the study by Ng et al¹², in which they evaluated the reliability and quality of YouTube™ videos about SLE. As determined by Moon and Lee¹³, helpful videos for COVID-19 on YouTube™ were found to be significantly longer in duration, which was similar to our study. This may be because helpful videos are presented with a more comprehensive and detailed perspective and, as a result, stay longer.

Previous research^{8,9} has shown YouTube™ to be a useful or misleading source of information during the public health crisis, including the Ebola and Zika. According to Smailhodzic et al¹⁴, patients' use of social media for health-related reasons has increased. Patients use social media when healthcare services cannot meet their needs. Thus, the quality of information on social media essentially impacts patients' behavior.

The coronavirus disease 2019 (COVID-19) has shown the potential good and bad consequences of social media²⁰. Misinformation

about the disease spread through social media and other online forums – often fueled by the politicization of scientific information – has significantly undermined the adoption of recommended prevention and control behaviors and reduced support for vital policies such as vaccination²¹.

Limitations

Our study is subject to several limitations, such as a cross-sectional design and the fact that information was found from social media platforms limited to only YouTube™ videos.

Conclusions

With the widespread internet, public health officials now have to compete with other official and unofficial sources of information to get their message across. In light of these concerns, we tried to evaluate CCHF videos available on a popular internet video site (YouTube™).

As YouTube™ is an important source of health information about CCHF, there is a need to increase the number of high-quality and reliable content for patients on the platform.

Transmission methods of zoonotic viral diseases, such as Crimean Congo and Ebola, can be taken under control with more publications and information through the coordinated efforts of public health and infectious diseases communities on social media platforms. An inclusive interdisciplinary expert advisory panel consisting of medical experts and health communicators should work together to improve the quality of information about health on YouTube™.

Table II. Detailed characteristics of YouTube™ videos according to their usefulness.

	Sufficient 34 (45.3%)	Partially sufficient/insufficient 41 (54.7%)	Test value	p-value
*Variables Median (min-max)				
Number of views	2,142.26 (1.00-23,442.00)	3,174.3171 (0.00-32,372.00)	666.000	0.741
Screen time	11.0791 (1.45-50.15)	8.5651 (0.17-63.31)	456.500	0.010
Number of likes	100.9118 (0.00-2,700.0)	27.4878 (0.00-389.00)	623.000	0.427
Number of comments	1.7941 (0.00-13.00)	7.0244 (0.00-110.00)	696.500	0.995
**Reliability and quality scores Mean (±SD)				
DISCERN	3.1765 (±0.93,649)	2.0244 (±0.96145)	279.000	0.000
GQS	3.6765 (±0.94454)	2.2927 (±0.90122)	226.500	0.000
***Target audience n (%)				
Patients	11 (32.4)	27 (65.9)	8.345	0.004
Healthcare professionals	23 (67.6)	14 (34.1)		

*Mann-Whitney U test; **t-test; ***Chi-square test. Data presented as n (%) or median (interquartile range). Comparisons between the groups were performed using the t-test. Values of p<0.05 were accepted as significant and marked in bold.

Conflicts of Interest

The authors declare no conflicts of interest.

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Availability of Data and Material

The data and material can be made available from the authors.

Authors' Contributions

O.Y. planned the study. O.Y. and E.A.A. collected the data. E.A.A. did the analysis. O.Y. and E.A.A. wrote the draft paper. All authors contributed to and approved the final version of the manuscript.

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