ORIGINAL RESEARCH

Evaluation of Videos with COVID-19 and CPR Content on YouTube

YouTube'da COVID-19 ve CPR İçerikli Videoların Değerlendirilmesi

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Abstract

Objective: The aim of this study is to evaluate the compliance of the scientific, quality, and educational content of YouTube videos with cardiopulmonary resuscitation (CPR) with the American Health Association 2020 current resuscitation guideline.

Method: The first 70 most watched videos were recorded for evaluation by typing Coronavirus disease-2019 (COVID-19) and CPR as keywords in the search engine of the YouTube homepage. The videos were evaluated according to the criteria of inclusion in the study, and the source of the videos, by whom they were uploaded, the length of the video, the number of days uploaded, the number of views and likes, the global quality score (GQS), the Journal of the American Medical Association (JAMA) score and the m-DISCERN scoring systems were recorded to detect the characteristics of the videos. These data were evaluated statistically.

Results: 21% of the evaluated videos were uploaded by doctors and 79% by healthcare providers. The average video length was 3.945 seconds, the average number of views was 9104.37, and the average number of like was 61.70. The mean GQS was 4.24, mean JAMA score was 3.06, and mean m-DISCERN score was 3.76. There was no statistically significant difference between both the loaders.

Conclusion: YouTube videos were found to be accurate and appropriate for scientific content. The reliability of YouTube, which is a visual video content, is significantly meaningful, especially about how healthcare professionals will perform CPR during the COVID-19 pandemic.

Keywords: COVID-19, CPR, GQS, JAMA, m-DISCERN, YouTube

Öz

Amaç: Bu çalışmanın amacı Koronavirüs hastalığı-2019 (COVID-19) hastalığı ile birlikte yapılan kardiyopulmoner resüsitasyon (CPR) içerikli YouTube videolarının bilimselliğinin, kalitesinin ve eğiticiliğinin American Health Association 2020 güncel resüsitasyon kılavuzuna uygunluğunu değerlendirmektir.

Yöntem: YouTube anasayfasının arama motoruna anahtar kelime olarak COVID-19 ve CPR yazılarak en çok izlenen ilk 70 video değerlendirilmek üzere kaydedildi. Videoların çalışmaya dahil edilme kriterlerine göre değerlendirmesi yapılarak videoların kaynağı, kim tarafından yüklendiği, video uzunluğunun süresi, yüklenme gün sayısı, izlenme ve beğenilme sayıları, global quality skoru (GQS), Journal of the American Medical Association (JAMA) skoru ve m-DISCERN skorlama sistemleri videoların özelliklerini saptamak için kaydedildi. Bu veriler istatistiksel olarak değerlendirildi.

Bulgular: Değerlendirilen videoların %21'i doktorlar, %79'u sağlık kuruluşu tarafından yüklenmişti. Ortalama video uzunluğu 3,945 saniye, ortalama izlenme sayısı 9104.37, ortalama beğenilme sayısı 61,70 idi. Ortalama GQS'u 4,24, ortalama JAMA skoru 3,06, ortalama m-DISCERN skoru 3,76 idi. Her iki yükleyici arasında istatistiksel olarak anlamlı bir fark yoktu.

Sonuç: YouTube videolarının doğru ve bilimsel içeriğe uygun olduğu bulundu. COVID-19 pandemi sırasında özellikle sağlık profesyonellerinin nasıl CPR yapacağı konusunda görsel anlamda video içeriği olan YouTube'un güvenirliği önemli ölçüde anlamlıdır.

Anahtar kelimeler: CPR, COVID-19, GQS, JAMA, m-DISCERN, YouTube

Introduction

The internet is an easily accessible source of information. Especially in the field of health, the video-based YouTube site is a very preferred option for accessing appliable medical information. Every month, more than 1.9 million people visit YouTube and watch a huge number of medical education videos [1]. On the other hand, the Coronavirus disease-2019 (COVID-19) pandemic, which has affected the world since December 2019, has caused concern about how to perform the vital cardiopulmonary resuscitation (CPR).

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As a result of the studies, many guidelines that are published have started to be followed. American Heart Association (AHA) guideline is generally preferred as the main guideline (2). Because it is easy to access and share the latest and up-to-date information on the Internet, more over the information distributors have shared on the YouTube website to explain CPR better. People need video content with higher quality and information (3). With the advance of the Internet, people can easily obtain health information online more and have made it the most prominent source of health information. However, online platforms may also contain inaccurate medical information that may cause one from making wrong decisions about the treatment of diseases (4). Our study was conducted to investigate the compliance of CPR videos added to YouTube due to the COVID-19 pandemic with AHA guidelines.

Materials and Methods

On March 14, 2021, the keywords CPR and COVID-19 were written into the YouTube search engine and the first 100 videos related to these keywords were evaluated. Out of 100 videos, 30 videos with exclusion criteria were not included in the study (Figure 1). Non-English, repeated, pre-study-start video, non-medical content and unrelated to keywords were not included in the study. The ethics committee approval was not obtained because this study included publicly available video-sourced data. The videos were evaluated by two experienced emergency medicine specialists and the evaluations were averaged. After typing keywords into the search engine, the videos that came out were examined. The videos that were decided to be included in the study were written one by one by recording their links to the research form. All information showing
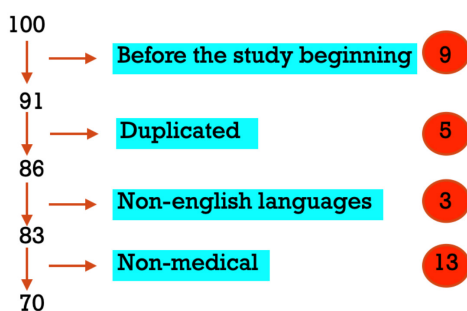
the general features of the videos, whose links are recorded, is recorded at the bottom of the window. The length of the video, who uploaded the video, the number of likes, the number of days uploaded, and the view rate (views/day) were recorded.

Reliability, Quality and Utility Assessment

The m-DISCERN (quality criteria for consumer health information) scores, which determine the video quality, were recorded by calculating the modified (GQS) and JAMA (Journal of American Medical Association) scores. The reliability of the video content was assessed by Charnock et al. (5) using the modified DISCERN scale (m-DISCERN) adapted from the original DISCERN for the evaluation of written health information, and the consumer health information quality criteria scoring system was applied. What is DISCERN for? There is currently a great deal of written consumer health information available about treatment options from a variety of sources, including the internet. Not all of this information is of good quality, and only a small portion is based on good evidence. Many of

1. Are the goals clear and achievable?
2. Are reliable sources of information used?
3. Is the information presented balanced and unbiased?
4. Are additional sources of information listed for patient reference?
5. Have areas of uncertainty been mentioned?

Figure 2. m-DISCERN scoring

Score	Description of quality
1	poor quality; is unlikely of be to us efor patient education
2	poor quality; is of limited use to patients because only some information is present.
3	Suboptimal quality and flow; is somewhat useful to patients; important topics are missing, some information is present.
4	Good quality and flow; useful to patients because most important topics are corvered.
5	Excellent quality and flow; is highly useful to patients.

Figure 3. Global quality score

Criteria	Description
Authorship	Author and contributor credentials and their affiliations should be provided.
Attribution	Clearly lists all copyright information and states references and sources for content.
Disclosure	Conflicts of interest, funding, sponsorship, advertising, support, and video ownership should be fully disclosed.
Currency	Initial date of posted content and subsequent updates to content should be provided.

Figure 4. JAMA scoring system
JAMA: Journal of the American Medical Association

The number of videos: 100

100	Before the study beginning 9
91	Duplicated 5
86	Non-english languages 3
83	Non-medical 13
70	

The videos included in the study: 70

Figure 1. Study flow chart

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the posts available provide false or confusing advice, and it can be difficult to know what information to use and which to discard. DISCERN is a tool designed to help users of consumer health information judge the quality of written information about their treatment options. There are a total of 5 questions in m-DISCERN scoring. The ladeste 0 and the highest 5 points are awarded in Figure 2. Ratings above 3 indicate a high degree of reliability (6,7). The GQS was used to assess the quality of the video content. This assessment tool was originally developed to evaluate website resources and assess the flow of available information and ease of use. In GQS, the information is classified in Figure 3. GQS is a system that scores between 0 and 5, from the lowest quality to the highest quality. A higher GQS score means higher quality information. In addition, each video was evaluated for the JAMA scoring system as shown in Figure 4. The JAMA scoring system is a non-specific and objective tool for online videos and resources. Basically, it includes authorship, bibliography, patent right and actuality. Each criterion gets 1 point. 1 indicates the weakest quality, while 4 indicates the highest quality (8,9).

Statistical Analysis

The Statistical Package for the Social Sciences 22 (IBM, Armonk, NY, USA) was used for the statistical analysis. The Mann-Whitney Utest was used to evaluate statistically significant differences in the general features of the videos between groups. A statistical significance was set at $p<0.05$. Spearman's correlation coefficients between the scores were used for concurrent validity.

Results

In our study, 70 videos were evaluated. Fifteen of the videos were uploaded by doctors (21.43%) and 55 by health institutions (78.57%). The average viewing rate of the videos was found to be 13.20. The average broadcast history (days) was 650.04, the broadcast time (seconds) was 777.16, the number of views was 9104.37, and the number of like was 61.70. When the number of views of all videos was added together, it was found to be 640321. m-DISCERN score, JAMA score and GQS values were evaluated as having high quality (Table 1). When the characteristic distribution of the videos was examined, those with audio and spoken content (97.1%) were found to be the highest (Table 2). When the video was evaluated according to the upload source, no significant difference was found between JAMA, GQS score and m-DISCERN scores (Table 3). The relationship between viewing rates and quality assessment scores was not found (Table 4). Since there was no number of dislikes within the framework of YouTube publishing policies within the changing criteria, the liking rate and video power index could not be calculated in the data [like ratio = like x100/ (like+dislike) (Video power index = like ratio x view ratio].

Discussion

In our study, we tried to determine the characteristics of the video content that people, especially health workers, encountered when they researched CPR on the YouTube website during the COVID-19 outbreak. In this study, we found that the videos were of sufficient quality by looking at the m-DISCERN, GQS score and JAMA scores. However, when we examined the first 100 videos, we found that 30 videos did not have medical content. Future studies should consider a significant number of potential videos that may be excluded before data collection, but this is difficult to predict in advance. YouTube is growing in popularity, with more and more people using the internet to access health information, social media, and free access to videos from content creators, including health professionals (10). Since this information, uploaded to YouTube, which has become the largest online source for medical information, is published without quality control, incorrect and incomplete information can be easily spread and accurately detected through this virtual platform. According to the

Table 1. General characteristics of videos					
	n	Minimum	Maximum	Mean	Standard deviation
Average broadcast (days)	**70**	**46**	**821**	**650.04**	**171.95**
Broadcast time (seconds)	70	36	3945	777.16	980.67
View numbers	70	12	134243	9104.37	19046.83
Like numbers	70	0	814	61.70	117.35
View rates	70	0.01	168.20	13.20	25.24
m-DISCERN score	70	2	5	3.76	1.06
GQS	70	3	5	4.24	0.77
JAMA score	70	1	4	3.06	0.931

JAMA: Journal of the American Medical Association

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2015 AHA resuscitation guide by Katipoglu et al. (11), a study on the evaluation of the accuracy of English CPR videos on YouTube showed that it was not suitable in terms of providing basic information to the general population. In our study, it was determined that the videos were sufficient quality, and the reason for this was the high effort and desire of health workers to transfer their more accurate and important approaches to the information recipients with the concern about how there was a change in CPR during the COVID-19 pandemic. In addition, uploading video uploaders by healthcare companies or organizations has increased reliability even more. The m-DISCERN score was found to be higher than other studies. Li HO-Y et al. (12) included 69 of the 150 videos displayed in their study. They recorded the total number of views of 69 videos included in this study, which was examined by typing COVID-19 into the search engine, as 257,804,146. The study was conducted on 21 March 2020. Our study was conducted on March 14, 2021. Although our study was conducted later than it, the reason

for the low number of views is that the video content is more specific because the words COVID-19 and CPR are written together in the search engine (12).There are limitations to be considered in this study. First, it's a cross-sectional study, but since YouTube is already a dynamic platform, any search strategy will have this limitation. And because it's supported by other studies, this limitation is unlikely to affect our outcome (13,14). In the study conducted on contact lens use, 200 videos were analyzed and 79 of them were included in the study and the m-DISCERN score of these videos was found to be 2.34 (1), JAMA score was 1.20 (0.99) and GQS score was 3.47 (1.28) (15). Regarding the effect of vitamin C on COVID-19 conducted by Lee and Chang (16), the YouTube study evaluated 50 videos and found that their m-DISCERN and GQS scores were 2.2 (1.4) and 2.2 (1.1), respectively, and when these values were examined, it was seen that the videos were of poor quality, weak and misleading. Although the videos were made by medical doctors, their reliability did not differ significantly from those in other groups (16). In our study, the quality assessment scores were found to be higher. In the study about lateral epicondylitis and YouTube contents, Aydın and Mert (17) reported the mean GQS, JAMA and DISCERN scores as 3.06, 1.96 and 43.94, respectively. Consedering these findings, the video quality in our study was found better than this study. In the COVID-19 pandemic, which has affected the whole world, source servers have taken care to have better, high quality and reliable videos while producing videos.

Table 2. Distribution of video characteristics

	Yes n (%)	No n (%)
Speaking	68 (97.1%)	2 (2.9%)
Sub-title	34 (48.6%)	36 (51.4%)
Voice	68 (97.1%)	2 (2.9%)
Practice	49 (70%)	21(30%)

Table 3. Evaluation of the scores by video sources

	Points	Healthcare provider	Doctor	p
m-DISCERN	2	9	1	0.929
	3	18	1	
	4	18	1	
	5	20	2	
GQS	3	13	1	0.975
	4	23	2	
	5	29	2	
JAMA	1	3	0	0.686
	2	17	2	
	3	17	2	
	4	28	1	

Mann-Whitney U was used (non-parametric test), JAMA: Journal of the American Medical Association, GQS: Global quality score

Table 4. Comparation of view rates with the scores

	GQS	m-DISCERN	JAMA
View rates (p-value)	0.082 (r=-0.3)	0.352 (r=0.11)	0.252 (r=0.14)

Spearman corralation test was used, JAMA: Journal of the American Medical Association, GQS: Global quality score

Study Limitations

This was a cross-sectional study that only captured snapshots. YouTube is a dynamic video-sharing platform with content that is refreshed every day, and therefore this limitation is expected for all similar studies. Another limitation is that only English videos were analyzed. However, English is considered the dominant language for accessing information online. The rating was also limited to the top 100 videos for each search term. This number was decided based on previous data showing that the majority of searchers don't look beyond the first few pages when searching on YouTube. Finally, only YouTube videos were analyzed, and other social media sites were not evaluated.

Conclusion

The analysis of 70 videos releated COVID-19 and CPR on YouTube has good quality and useful for all the people. According to this results everyone who investigated how to make CPR at the COVID-19 pandemia can easily learn and practice this situation compliant with the guidelines.

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Ethics

Ethics Committee Approval: This study does not involve any human or animal resources, ethical approval was not required for the study.

Informed Consent: Patient information was not used in this study. Therefore, the patient consent certificate was not obtained.

Peer-review: Internally and externally peer-reviewed.

Financial Disclosure: The author declared that this study received no financial support.

References

1. Statistics for YouTube. Available from: https://www.youtube.com/yt/press. Accessed: April 23, 2019.

2. American Heart Association. Heart disease and stroke medical experts urge public to get COVID-19 vaccinations. 2021. Available from: https://newsroom.heart.org/news/heart-disease-and-stroke-medical-experts-urge-public-to-get-covid-19-vaccinations. Accessed: May 20, 2021.

3. AbouZahr C, Boerma T. Health information systems: The foundations of public health. Bull World Health Organ 2005;83(8):578-583.

4. Ventola CL. Social media and health care professionals: benefits, risks, and best practices. P T 2014;39(7):491-520.

5. Charnock D, Shepperd S, Needham G, Gann R. DISCERN: an instrument for judging the quality of written consumer health infor- mation on treatment choices. J Epidemiol Community Health. 1999;53(2):105-111.

6. Quality criteria for consumer health information. Available from: http://www.discern.org.uk/background_to_discern.php

7. Langford B, Hooten WM, D'Souza S, Moeschler S, D'Souza RS. YouTube as a source of medical information about spinal cord stimulation. Neuromodulation 2021;24(1):156-161.

8. Silberg WM, Lundberg GD, Musacchio RA. Assessing, controlling, and assuring the quality of medical information on the Internet. JAMA 1997;277(15):1244-1245.

9. DISCERN: quality criteria for consumer health information. Available from: http://www. Discern.org.uk/. Accessed: 30 October 2012.

10. Velasco E, Agheneza T, Denecke K, Kirchner G, Eckmanns T. Social media and internet based data in global systems for public health surveillance: a systematic review. Milbank Q 2014;92(1):7-33.

11. Katipoglu B, Akbas I, Koçak AO, Erbay MF, Turan EI, Kasali K. Assessment of the Accuracy of Cardiopulmonary Resuscitation Videos in English on YouTube according to the 2015 AHA Resuscitation Guidelines. Emerg Med Int 2019;2019:1272897.

12. Li HO-Y, Bailey A, Huynh D, Chan J. YouTube as a source of information on COVID-19: a pandemic of misinformation? BMJ Glob Health 2020;5(5):e002604.

13. Pandey A, Patni N, Singh M, Sood A, Singh G. Youtube as a source of information on the H1N1 influenza pandemic. Am J Prev Med 2010;38:e1-3.

14. Bora K, Das D, Barman B, Borah P. Are Internet videos useful sources of information during global public health emergencies? A case study of YouTube videos during the 2015-16 Zika virus pandemic. Pathog Glob Health 2018;112(6):320-328.

15. Yildiz MB, Yildiz E, Balci S, Köse AO. Evaluation of the Quality, Reliability, and Educational Content of YouTube Videos as an Information Source for Soft Contact Lenses. Eye Contact Lens 2021;47(11):617-621.

16. Lee H, Chang MC. YouTube as a source of information regarding the effect of vitamin C on coronavirus disease. Complement Ther Med 2022;67:102827.

17. Aydın M, Mert A. Assessment of Lateral Epicondylitis Videos on YouTube. Bagcilar Med Bull 2021;6(4):390-396.