Original Article / Orijinal Araştırma

Evaluation of the Quality and Reliability of YouTube Videos on Premature Ventricular Contraction

Prematüre Erken Kontraksiyon ile İlgili YouTube Videolarının Kalite ve Güvenilirliğinin Değerlendirilmesi

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Abstract

Aim: The internet is a popular and continually utilized platform to gain medical knowledge for patients and health professionals. This research aimed to evaluate the accuracy and quality of videos for premature ventricular contraction (PVC) on YouTube.

Material and Method: The keyword "premature ventricular contraction" was inputted into the YouTube search engine. The 60 most watched videos on YouTube were analyzed. Six of these were excluded from the study. A total of 54 patients were included in the study. General characteristics of the videos were recorded. Two specialist physicians reviewed all videos. GQS, DISCERN, and JAMA scoring systems were used to test the video quality and reliability. Video quality was divided into three groups according to the GQS score. Video characteristics were compared between quality groups.

Results: 37% of the videos posted were from doctors, and the most frequently seen content was related to general information about PVCs, accounting for 70.4%. There were 24 high-quality videos. The number of video comments (p=0.006), daily view rate (p=0.001), JAMA (p=<0.001), and DISCERN (p=<0.001) scores were increased in high-quality videos. The video source was divided into two groups: physicians and non-physicians. GQS (p=0.024) and DISCERN (p=0.047) scale scores were seen to be higher in doctors when evaluated as video sources.

Conclusion: YouTube provides an accessible and cost-effective platform for patients to learn about and comprehend their ailments. Using this platform by the right people can be a valuable patient resource for PVC.

Keywords: Premature ventricular contraction, Internet, YouTube, GQS

Öz

Amaç: İnternet, hastalar ve sağlık profesyonelleri için tıbbi bilgi edinmede popüler ve sürekli kullanılan bir platformdur. Bu araştırma, YouTube'daki prematüre ventriküler kontraksiyon (PVK) videolarının doğruluğunu ve kalitesini değerlendirmeyi amaçlamıştır.

Gereç ve Yöntem: YouTube arama motoruna "prematüre ventriküler kontraksiyon" anahtar kelimesi girilmiştir. YouTube'da en çok izlenen 60 video analiz edilmiştir. Bunlardan altısı çalışma dışı bırakıldı. Toplam 54 hasta çalışmaya dahil edildi. Videoların genel özellikleri kaydedildi. İki uzman hekim tüm videoları inceledi. Video kalitesini ve güvenilirliğini test etmek için GQS, DISCERN ve JAMA skorlama sistemleri kullanıldı. Video kalitesi GQS skoruna göre üç gruba ayrıldı. Video özellikleri gruplar arasında karşılaştırıldı.

Bulgular: Yayınlanan videoların %37'si doktorlara aittir ve en sık görülen içerik %70,4 ile PVK'ler hakkında genel bilgilerle ilgiliydi. Yüksek kaliteli 24 video vardı. Video yorum sayısı (p=0,006), günlük görüntüleme oranı (p=0,001), JAMA (p=<0,001) ve DISCERN (p=<0,001) puanları yüksek kaliteli videolarda arttığı saptandı. Video kaynağı iki gruba ayrılmıştır: hekimler ve hekim olmayanlar. GQS (p=0.024) ve DISCERN (p=0.047) ölçek puanlarının video kaynağı hekimlerde daha yüksek olduğu görülmüştür.

Sonuç: YouTube, hastaların hastalıklarını öğrenmeleri ve anlamaları için erişilebilir ve uygun maliyetli bir platform sağlar. Bu platformun doğru kişiler tarafından kullanılması PVK için değerli bir hasta kaynağı olabilir.

Anahtar Kelimeler: Prematüre erken kontraksiyon, internet, YouTube, GQS

INTRODUCTION

Premature ventricular contractions (PVC) are irregular beats from the ventricles that are not part of the heart's usual conduction system.[1] It is frequently encountered in cardiac pathologies. Increased PVCs have been found in chronic diseases such as ischemic heart disease, heart failure, and hypertension.[2] Myocardial cell remodeling and scar formation lead to the development of PVCs. It has also been reported to occur in 40% to 90% of ordinary healthy people without any damage to the myocardium.[3] An increase in the number of PVCs can lead to heart failure or deterioration in the symptoms of heart failure. The incidence of idiopathic PVCs is high. Medical treatment and ablation therapy are at the forefront of symptomatic idiopathic PVCs. Patients refractory to medical therapy are ablated with the electrophysiologic study.[4] In general, cardiologists are not predisposed to progress in the more specific field of electrophysiology as the training is time-consuming and demanding. They are more inclined towards general cardiology and invasive procedures.

Today, it is common to use the internet to access health-related information, and it has been reported that 80% of Internet users access health-related information.[5] It has been shown that 75% of people with chronic diseases are influenced by internet-based health information in their treatment decisions.[6] One of the popular sources used for accessing health-related information is YouTube, but there are concerns about the quality and reliability of the information it contains. The information may be for advertising purposes and not reflect the truth. In addition, videos are prepared by experts in their field, and this causes information pollution. Some questionnaires assess the reliability and scientific content of information sources. Global Quality Score (GQS), DISCERN, and Journal of the American Medical Association (JAMA) are the most commonly used practical questionnaires and scales. These scales are tools that evaluate scientific articles and reveal their quality.[7] In this study, we aimed to investigate the quality and reliability of information by examining the most watched videos with PVCs on YouTube.

MATERIAL AND METHOD

This study analyzed the 60 most viewed videos on PVC using the search button on YouTube until May 2023. Fifty-four videos were included in the study (**Graph 1**.) Before keywords were entered, videos with ventricular extra beat, ventricular extrasystole, and PVC in the literature were scanned. The PVC, which had the highest follow-up rate, was determined as the keyword for the study. In English, PVC was searched on the YouTube video-sharing platform (https://www.youtube.com/). Browser search history was deleted before the keyword was searched, as past search results might influence the study. Videos were sorted according to the highest video view rates. The most watched videos were ranked first. Sixty videos on the first three pages of YouTube were analyzed. A playlist was created. Because it was anticipated that the search list results might change, all videos were evaluated and scored by two experts with backgrounds

and experience in electrophysiology and arrhythmia.

Two investigators determined whether the videos should be included in the study. The exclusion criteria were as follows: videos unrelated to PVC, repetitive videos of the same content from publishers, videos published in languages other than English, videos with advertising content, and videos with poor audio and video quality. In addition, videos that require a membership to watch were not included in this study, and videos that are available for public use were evaluated. Ethics committee approval was not required since this research was not a study involving humans and animals.

Data of video

The upload date, total number of views, likes, comments, and video duration were recorded. The number of views per day was calculated as the total number of views divided by the total number of days on YouTube. Video sources were analyzed into four groups: Doctors, healthcare professionals, health information websites, and television programs. Regarding video content, general information, medical and ablation treatments were analyzed in three groups. The video's target audience was categorized into two groups: patients and healthcare professionals.

Evaluating video quality

Video quality was assessed based on the GQS, which has been widely used in previous studies. According to the GQS, low quality was assigned 1-2 points, intermediate quality was assigned 3 points, and high quality was assigned 4-5 points. Scoring was based on the information in the scale. The scale information is expressed as follows:

One point, video quality is low, information is missing and not beneficial for patients; 2 points, although some information is given, overall video quality is insufficient; 3 points, meaningful information about the subject is given but contains misleading information; 4 points, video quality, and fluency are good, in general, most of the information is correct but contains minor deficiencies. 5 points, there are no deficiencies in the fluency and quality of the video. It contains accurate information and is very useful for patients.[8]

Evaluation of video reliability

The modified DISCERN questionnaire has been used in previous studies to test the reliability of health information. It consists of five questions. Yes and no answers are scored 1 and 0, respectively. The survey questions are as follows: a) Is the purpose of the video clear and understandable? b) Is the source of information provided by experts in the field? c) Is the information unbiased and balanced? d) Are there additional sources of information for patient reference? e) Does it include ambiguous and controversial areas?[9]

JAMA is a survey by the American Medical Association testing the reliability of sources on health websites. It covers four items: Authorship, citation, patent rights, and currency. Each is scored 1 point. A high total score indicates high credibility.[10]

Statistical analysis

The analyses were evaluated in SPSS (Statistical Package for Social Sciences; SPSS Inc., Chicago, IL) 22 package program. Descriptive data were presented as n and % values for categorical data and mean ±standard deviation and median (minimum-maximum) values for continuous data. The Kolmogorov-Smirnov test evaluated the conformity of continuous variables to normal distribution. Video sources were categorized as doctors and non-doctors. Non-parametric Mann-Whitney U-test was used to compare these two groups. The Kruskal-Wallis test compared three groups since the GQS scale groups were not normally distributed. The Spearman correlation test was used to examine the relationship between continuous variables. Interobserver and intraobserver measurement variability, employing a limits of agreement method with Bland-Altman plots was evaluated in all video images. The statistical significance level was accepted as $p<0.05$ in the analysis.

RESULTS

A total of 60 videos were evaluated. Six videos were excluded from the study. The remaining 54 videos were included in the study (**Figure 1**). Doctors posted the most videos with PVCs (37%). The most common video content was general information about PVC, with a rate of 70.4%. The videos were directed at patients rather than health professionals. **Table 1** includes information on the GQS, JAMA, and DISCERN scales obtained from the videos, as well as the general characteristics of the video. **Figure 2** reflects the quality of the videos according to the GQS scale. The number of videos by year is shown in **Figure 3**.
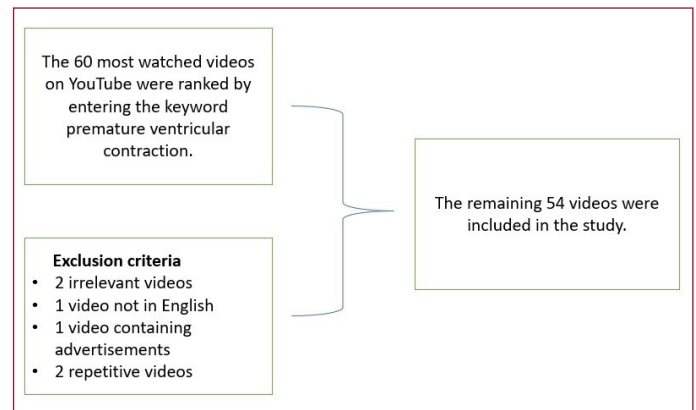

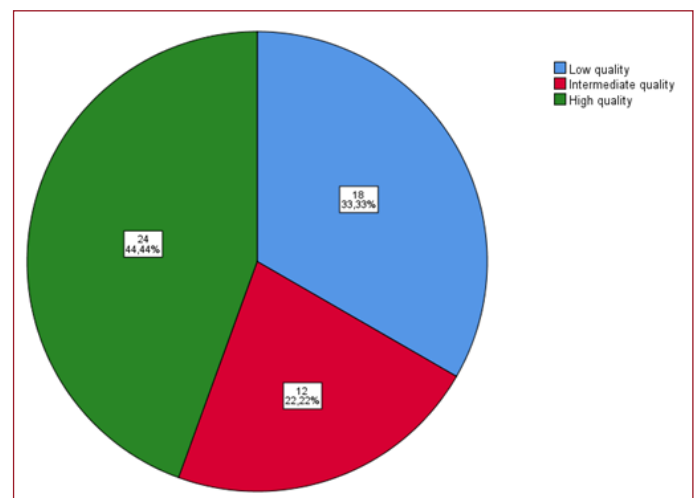**Figure 1:** Flowchart showing the selection of YouTube videos

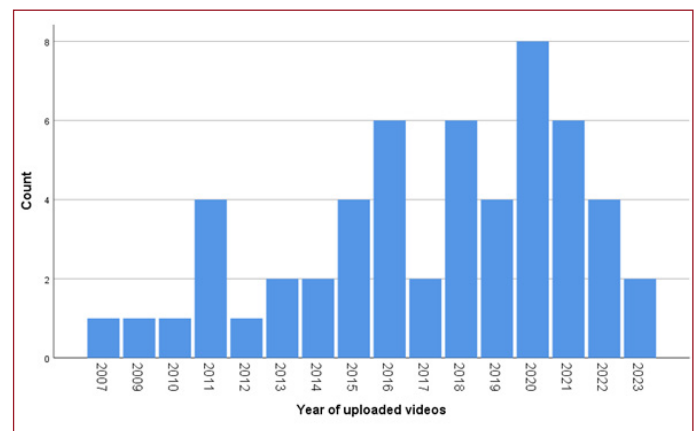**Figure 2:** Quality classification of the analyzed videos

Figure 3: Distribution of analyzed videos by year

Videos were categorized into three groups according to the GQS scale. There were 24 high-quality videos. When the variables were analyzed between the three groups, significant differences were found in the number of video comments (p=0.006), daily viewing rate (p=0.001), JAMA (p=<0.001) and DISCERN (p=<0.001) scales (**Table 2**). Post-hoc analyses showed a statistically significant difference due to the high-quality group.

Table 1. All features of the videos		
	Number	**%**
Data source		
Doctors	20	37
Other health professionals	14	25.9
Health information sites	16	29.6
TV programs	4	7.4
Video content		
General information	38	70.4
Medical treatment	9	16.7
Ablation treatment	7	13
Target group		
Health professionals	24	44.4
Patients	30	55.6
	Mean ±SD	**Median (Min-max)**
GQS	3.17±0.96	3 (2-5)
JAMA	2.83±1.04	3 (1-4)
DISCERN	3.05±1.13	3 (1-5)
Number of views	75044.96±130810.35	29500 (6900-831120)
Number of views per day	45.19±53.83	19.93 (3.01-243.84)
Number of video Likes	873.90±1232.28	376.50 (6-6840)
Number of video comments	167±249.10	58 (0-1203)
Time elapsed since the video was uploaded (days)	2113.94±1422.46	1825 (126-5840)
Those in bold are p less than 0.05.		

Table 2. Comparison of basic features according to quality groups

	Low quality N=18	Intermediate quality N=12	High quality N=24	p*
	Median (min-max)	Median (min-max)	Median (min-max)	
Video duration (min)	9.27 (0.33-64)	5.29 (0.50-70)	7.54 (1-29.49)	0.730
Number of views	32500 (11000-139000)	21500 (6900-204000)	54000 (8500-831120)	0.111
Number of views per day	18.67 (3.01-243.84)	11.34 (4.44-46.58)	30.68 (3.42-189.04)	0.001
Number of video likes	374.50 (6-3500)	215.50 (78-1300)	565.50 (36-6840)	0.056
Number of video comments	29 (0-380)	25.50 (4-811)	287 (0-1203)	0.006
Elapsed time (days)	1095 (147-4745)	2190 (365-4380)	2007.50 (126-5840)	0.605
JAMA	2 (1-4)	3 (1-4)	4 (1-4)	<0.001
DISCERN	2 (1-4)	3 (2-4)	4 (1-5)	<0.001
Those in bold are p less than 0.05.				

The video source was revised into two groups: doctors and non-doctor. When the scales were compared between the groups, GQS (p=0.024) and DISCERN (p=0.047) scale scores were higher in doctors as video sources (**Table 3**). The JAMA (p=0.101) scale was similar between the groups. The correlation between the scales and variables was also analyzed. The highest correlation was found between JAMA and DISCERN (p<0.001, r=0.804). In addition, the number of comments and the GQS scale were correlated (p=0.001, r=0.450). The relationship between the scales and other parameters is shown in **Table 4**.

Table 4. Correlation of variables according to quality scales

		GQS	JAMA	DISCERN
JAMA	r	0.538		0.804
	p	<0.001		<0.001
DISCERN	r	0.767	0.804	
	p	<0.001	<0.001	
Video duration	r	0.023	-0.030	-0.017
	p	0.870	0.830	0.801
Number of views	r	0.169	0.153	0.144
	p	0.221	0.270	0.298
Number of views per day	r	0.158	0.168	0.222
	p	0.254	0.225	0.107
Number of video likes	r	0.154	0.110	0.076
	p	0.265	0.428	0.584
Number of video comments	r	0.450	0.117	0.219
	p	0.001	0.399	0.111
Elapsed time	r	0.083	0.064	0.020
	p	0.549	0.648	0.887

DISCUSSION

We are aware of our study as the first study evaluating the quality, reliability, and content of English YouTube videos related to PVC. Most of the videos analyzed in our study were general information, and the videos were prepared for healthcare professionals and patients in similar proportions. The majority of video sources (37%) were doctors. The higher quality videos were uploaded to YouTube by doctors than other video sources. Videos uploaded by doctors were found to have higher credibility. In addition, videos with many daily views and comments were better quality than the number of views.

PVC is an arrhythmia with a high incidence, even in healthy people. The fact that it is so common and that those who complain of palpitations learn about it through various platforms has led to the need to research this term. Youtube is the most common platform that provides easy access to the most information and visualization. YouTube is a beneficial platform for healthcare professionals, providing online lectures, and helping them better understand the term premature ventricular contraction, which they regularly encounter. One of the results of our study was the high percentage of general information. The reason for this is our assumption that they use the social platform to get information about diseases rather than treatment of the disease. In terms of treatment, except for herbal and preventive treatments, we can assume that they consult health institutions in cases that require medication or interventional procedures. We can say that they use the social platform to get preliminary information before going to health institutions.

Table 3. Comparison of key features by video Sources

	Doctor	Non-doctor	p*
	Median (Min-max)	Median (Min-max)	
Video duration (min)	8.56 (0.50-64)	5.73 (0.33-70)	0.227
Number of views	21500 (6900-149000)	38500 (11000-831120)	0.032
Number of views per day	13.92 (3.42-136.07)	21.83 (3.01-243.84)	0.781
Number of video likes	269.50 (80-3800)	498 (6-6840)	0.781
Number of video comments	114.50 (0-1203)	56 (0-811)	0.329
Elapsed time (days)	1825 (126-4380)	1825 (147-5840)	0.393
JAMA	3 (1-4)	3 (1-4)	0.101
DISCERN	4 (1-5)	2.50 (1-5)	0.047
GQS	4 (2-5)	3 (2-4)	0.024
Those in bold are p less than 0.05.			

While there were fewer PVC-related videos in previous years, there was a particular increase in the following years. This may be attributed to Youtube not being actively used in previous years and the internet was not so widespread. However, when we looked at the year graph, we observed that the number of most viewed videos increased and decreased in a parabolic manner. The reason for this is that the quality and reliability of the videos increased, and the previously uploaded videos met the necessary needs of patients and healthcare professionals.

The internet has become an important source of access to information in the health field now. It has been shown that 87.5% of patients with some chronic diseases consulted the internet for information about their diseases before a doctor's appointment. An average of 8.7 million daily users use the internet to obtain medical information, more than daily visits to health professionals. However, approximately 75% of these users are reported to be concerned about the reliability of the information.[11] One of the most preferred websites by internet users is Youtube. This video-sharing site can potentially be a valuable source of health information. However, this platform raises concerns about disseminating false and misleading information because anyone can upload videos related to health and are not controlled. In various studies conducted in different disease groups, YouTube videos were reported as low-quality.[12,13] Therefore, healthcare professionals should be informed about the quality and content of online information.

In the literature, various studies evaluating the quality of health-related videos on the Youtube platform have obtained different results. When we look at the literature, the rate of high-quality videos varies from 5.4% to 65%.[14] In our study, 44.4% of the videos on PVC were high quality. Differences in the topics examined, video sources, and the number of videos examined may be the reason for the different results in the literature. Most of the information about PVC was general information. Catheter ablation therapy was mentioned the least. The reasons for this may include that catheter ablation is less commonly used, it is a relatively new treatment modality, and it does not appeal to a wide range of people.

In our study, high-quality videos were uploaded by physicians. Videos uploaded by physicians had higher JAMA and DISCERN scores than in other groups, and there was a significant difference. In various studies in the literature, the JAMA and DISCERN scores of videos uploaded by physicians were observed to be higher, and it was reported that the reliability of these videos was higher.[15] It can be concluded that it is more valuable and reliable for patients to consider the uploading source when using YouTube to obtain information. However, a study by Rice reported that most people who tried to obtain health-related information online ignored the information sources.[16] Therefore, physicians can create more reliable sources for informational purposes or advise patients to pay attention to the sources of videos.

We could not determine a significant correlation between the duration of the videos in our study and SCQ, JAMA, and DISCERN scores. Studies show high-quality videos are more prolonged than low-quality videos.[17] The subject is expected to be better explained and conveyed with increased duration. However, it has also been reported that the viewer's interest decreases with increasing video duration.[16] It is recommended that video uploaders maintain reasonable time supervision for high-quality videos. Furthermore, the number of views and likes received was not correlated with these scores. However, the number of comments was found to improve video quality. The number of comments increases engagement with videos. We can say that the high number of comments gives credibility to the videos and that the viewers unwittingly gravitate towards quality videos.

Our study has some limitations. However, we think it will contribute to the literature. The sample size of our study was small, and "premature ventricular contraction" was used as the search keyword on YouTube. Short videos watched on YouTube were excluded from the study because they contained advertisements and were less than 1 minute long. We analyzed 60 videos that appeared on the first three pages; other videos were not analyzed. Since YouTube is a dynamic platform, new videos are added, and the number of views, comments, and likes of existing videos, in a sense, video popularity is constantly changing. In addition, YouTube is a platform used for advertising purposes; the number of video views may vary due to the advertising effect. JAMA, DISCERN, and GQS were used in our study as in other studies in the literature. However, there is no precise method to evaluate health video content. The evaluation of the videos depends on the researcher and is subjective.

CONCLUSION

Patients suffering from palpitations are increasingly interested in online resources, including YouTube, as with many disease groups. YouTube provides an accessible and cost-effective platform for patients to learn about and comprehend their ailments. Using this platform by the right people can be a valuable patient resource. However, patients may watch low-quality videos and be misinformed due to the focus on video popularity and misdirection for advertising purposes. Approximately half of the videos in our study were uploaded by physicians, and physicians uploaded the most high-quality videos. It is crucial for physicians and academic institutions to increase their interest in this platform and for patients to access accurate and reliable information. In addition, attempts should be made to subject health-related information on this platform to an audit mechanism. In addition, an increase in the number of comments can affect video quality. A high number of comments arouses curiosity in viewers about the topic. Therefore, there is a need for videos that will impact all viewers and provide them with detailed information, leaving them open to questions. This can be very useful for individuals using the video for education.

ETHICAL DECLARATIONS

Ethics Committee Approval: Ethics committee approval was not required since this research was not a study involving humans and animals.

Informed Consent: Informed consent was not required.

Referee Evaluation Process: Externally peer-reviewed.

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