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ORIGINAL ARTICLE

Inadequate informative capacity of arthroscopic lateral epicondylitis treatment-related youtube videos

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ABSTRACT

Background: In the literature, the quality of YouTube videos about lateral epicondylitis has been investigated by researchers so far. However, the quality of YouTube videos related to arthroscopic treatment has not been evaluated yet. So, this study aims to evaluate the informative capacity of YouTube videos related to arthroscopic lateral epicondylitis treatment.

Methods: For the study, a standard YouTube search has been conducted by using the terms 'tennis elbow arthroscopic treatment' and 'lateral epicondylitis arthroscopic treatment. For each search query, the 50 most "relevant" videos, as determined by YouTube's algorithm, have been taken into consideration (a total of 100 videos). After the exclusion of several videos, a total of 58 videos are included in the analysis. The informative quality and capacity of the videos have been evaluated by using the Journal of the American Medical Association (JAMA), Global Quality Score (GQS), DISCERN, and Lateral Epicondylitis Specific Score (LESS) scoring systems.

Results: According to DISCERN, 18.97% of the videos are of poor-to-very poor quality. The rate is 34.49% for LESS. According to the GQS and JAMA scores, the rate of low-quality videos is 36.21% and 44.83%, respectively. In addition, it is also seen that the mean DISCERN, LESS, GQS, and JAMA scores are significantly higher in videos uploaded by non-physicians than in those uploaded by physicians ($p<0.05$).

Conclusion: It can be concluded that YouTube videos related to arthroscopic lateral epicondylitis treatment have a poor informative capacity. This issue has to be paid attention to by orthopaedic surgeons and they should lead the patients to safer sources. Patients should be advised to consider searching for better quality and more informative resources when they want to seek information about in the arthroscopic treatment of lateral epicondylitis.

Keywords: Lateral epicondylitis, arthroscopy, YouTube, video, information, quality.

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INTRODUCTION

It is known that YouTube is the second most popular search engine for general Internet queries after Google. Moreover, it has been increasingly utilized by patients to access healthcare information easily (1). However, this trend among patients raises concerns about the quality and the accuracy of medical informative YouTube videos, which are not peer-reviewed (2). Patients who obtain treatment-related information from YouTube videos have the potential to develop misconceptions even if the clinicians assert otherwise (3).

Clinicians have been investigating the quality of orthopaedic disease-related and treatment-related YouTube videos for several years. Because a patient is always able to access inaccurate information through this platform. In addition, the results of these studies have demonstrated that the quality of YouTube videos related to numerous orthopaedic diseases is inadequate (3-9). Besides many other orthopaedic diseases, the quality of YouTube videos on lateral epicondylitis has also been being investigated (10-13).

The quality and the accuracy of online information on lateral epicondylitis varies substantially based on the search term, the author of the website, and the ranking of search results (14). The most common treatment for recalcitrant lateral epicondylitis is arthroscopic treatment, and it is one of the increasingly popular surgical procedures (15). Despite this, it can be seen that studies investigating YouTube videos on lateral epicondylitis have not included search terms related to arthroscopy. This study aims to evaluate the quality of YouTube videos on lateral epicondylitis and arthroscopic surgery.

MATERIALS AND METHODS

For the internet search, the history was deleted on Google Chrome (version 92.0.4515.159-64 bit) and it was used with cookies on May 8th, 2021. The standard www.YouTube.com website was accessed through the browser and YouTube was searched by entering the search terms 'tennis elbow arthroscopic treatment' and 'lateral epicondylitis arthroscopic treatment.' Then the first 50 videos for each search term were evaluated. It is known that it has been a previously used method (9). There are some inclusion criteria as the primary content relevance to lateral epicondylitis, English language, and acceptable audio-visual quality. Furthermore, repetitive videos, videos consisting only of audio or video, non-English videos, and videos irrelevant to lateral epicondylitis or arthroscopy have been excluded. After the exclusion, a total of 58 videos are included in this study. As only publicly available data have been used in the study, patient consent or ethics committee approval is waived.

For each YouTube video included in the study, several video characteristics are extracted as the title, the duration, the number of views, the source/uploader, the type of content, the number of days since upload, the rate of views (views/per day), and the number of likes. Also, video sources and uploaders are categorized into seven groups; academicians (related to authors or uploaders affiliated with research groups, universities, or colleges), physicians (independent physician or physician group with no research, university, or college affiliation), non-physician (healthcare professionals other than licensed medical doctors), educator, medical resource (content or animations from healthcare websites), patient, and commercial (1). Moreover, the content of the videos is categorized as surgical technique or approach, non-surgical management, and postoperative rehabilitation (9).

OrthoInfo is a website created by the American Academy of Orthopaedic Surgeons for Patient Education (16) and the Lateral Epicondylitis Scoring System (LESS) was designed based on the OrthoInfo website for lateral epicondylitis (https://orthoinfo.aaos.org/en/treatment/elbow-arthroscopy/). This method has been previously used to evaluate YouTube videos (6,17). The LESS consists of 24 items with five subheadings: patient presentation, information about lateral epicondylitis, diagnosis and evaluation, conservative treatment, surgical treatment, postoperative care, and complications. The maximum score that can be obtained from the LESS is 25. According to the scores obtained from the LESS, videos are categorized as very poor (scores between 0 and 5), poor (scores between 6 and 10), fair (scores between 11 and 15), good (scores between 16 and 20), and very good (scores between 21 and 25).

The Global Quality Score (GQS) and DISCERN scoring systems are used to assess the quality of videos included in the study (18, 19). The GQS provides a nonspecific assessment of the training quality. It consists of five items, and each item is worth 1 point. DISCERN was developed in Oxford, United Kingdom to assess written health information. The original DISCERN consists of 16 questions. Each question is scored between 1 and 5. Therefore, the minimum score that could be obtained from DISCERN is 16, and the maximum score is 80. According to the score ranges obtained from DISCERN, videos are categorized as

very poor (points between 16 and 28), poor (points between 29 and 41), fair (points between 42 and 54), good (points between 55 and 67), and excellent (points between 68 and 80) (6,9).

The JAMA (Journal of the American Medical Association) scoring system is used to evaluate the accuracy and reliability of the videos (11). JAMA provides a non-specific assessment of source reliability. JAMA consists of four items and 1 point is given for each item. A maximum score of 4 indicates the reliability of the source and a score of 0 represents poor reliability of the source (6,9).

The video links included in the study were presented as tables to the two observers. They blindly evaluated the videos and scored them according to the scoring system. Then, they discussed the scores in a consensus meeting until there was a full agreement for each video. Ethical Committee approval is not required for this research because of the research was conducted with publical available data.

Statistical Analysis

For the statistical analysis, categorical variables are presented as relative frequencies with percentages, and continuous data are reported as means and standard deviations and as medians with range values. The Shapiro-Wilk test is used to evaluate the distribution of the data and the Mann-Whitney U test is used to compare different groups. Also, Spearman's rho correlation coefficient is used to analyse the relationship between the usefulness scores generated for each video and their corresponding technical characteristics. The value of the Spearman rho coefficient correlation is interpreted as weak between 0 and 0.39, moderate between 0.40 and 0.59, strong between 0.60 and 0.79, and very strong between 0.80 and 1.0. A value of P< .05 is considered to indicate a statistical significance. The data are analysed via R Studio version 2023.09.0+463.

RESULTS

The duration, the number of views, the number of days since upload, the rate of views, the number of likes and dislikes, the liking rate, and the VPI values of the 58 videos included in the study are summarized in Table 1.

Table 1. Descriptive data on the characteristics of the videos included in the study.

	Mean ± SD	Median (Range)
Video Duration (sec)	422.13 ± 504.16	262 (41-2614)
No of views	49642.34 ± 151207.13	1827.5 (28-892760)
No of days after upload	1963.48 ± 1293.69	1871 (120-5806
View rate	19.73 ± 59.93	1.915 (0.02-322.64)
Like	453.84 ± 2089.19	10 (0-1300)
Dislike	3.81 ± 23.76	0 (0-180)
Like rate	88.63 ± 30.59	100 (0-100)
Video power index	19.48 ± 59.48	1.915 (0-322.64)

The mean DISCERN value is 39.36 ± 20.86. According to DISCERN, 9 of the videos are rated as very poor (15.52%), 2 of them are rated as poor (3.45%), 11 of them are rated as fair (18.97%), 10 of them are rated as good (17.24%), and 26 of them are rated as excellent (44.83%). According to the LESS, the average value of the videos is 6.31 ± 5.36. When all the videos are evaluated, it is seen that 9 of the videos are rated as very poor (15.52%), 11 of them are rated as poor (18.97%), 5 of them are rated as middling (8.62%), 7 of them are rated as good (12.07%), and 26 of them are rated as very good (44.83%). According to the JAMA criteria, 26 (44.83 %) of the videos are awarded as 2 or less. According to the GQS, 21 (36.21 %) of the videos received a score of 2 or less. When the uploaders were analysed, it was seen that there were 22 academicians, 27 physicians, 3 non-physicians, 1 educator, 3 medical resources, 1 patient, and 1 commercial resource. The comparison of videos uploaded by physicians and non-physicians is summarized in Table 2.

Table 2. Comparison of videos of non-physician and physician uploaders according to scores.

	Non-physician (n=21)		Physician (n=37)		p
	Mean ± SD	Median (Range)	Mean ± SD	Median (Range)	
JAMA	3.125 ± 1.115	3 (0-4)	1.823 ± 1.266	1 (0-4)	0.0004
GQS	3.333 ± 1.340	4 (1-5)	2.205 ± 1.200	2 (1-5)	0.0020
DISCERN	47.083 ± 21.932	48 (16-80)	35.676 ± 16.223	32 (10-80)	0.0423
LESS	11.166 ± 7.833	8 (1-25)	6.794 ± 4.952	6 (1-22)	0.0372

According to the correlation analysis, it is seen that there is a very strong correlation between JAMA and GQS (rho = 0.863), DISCERN (ϱ = 0.842), and DISCERN and GQS (0.876) ($p<0.05$). Also, there is a moderate positive correlation between LESS and JAMA (ϱ = 0.491), GQS (ϱ = 0.573), and DISCERN (ϱ = 0.591) ($p<0.05$). Besides, there is a moderate positive correlation between the number of likes and JAMA (rho = 0.535), GQS (rho = 0.512), DISCERN (rho = 0.426), and LESS (rho = 0.467) scores. The results of the correlation analysis are shown in Table 3.

Table 3. Correlation analysis results.

		Number of views	Like	Like rate	VPI	JAMA	GQS	DISCERN	LESS
Number of views	*Rho*	-							
	p								
Like	*Rho*	0.735	-						
	p	<0.001							
Like rate	*Rho*	0.018	0.264	-					
	p	0.891	0.040						
VPI	*Rho*	0.778	0.859	0.261	-				
	p	<0.001	<0.001	0.046					
JAMA	*Rho*	0.116	0.535	0.168	0.281	-			
	p	0.380	0.003	0.204	0.031				
GQS	*Rho*	0.220	0.512	0.295	0.344	0.863	-		
	p	0.094	0.008	0.023	0.008	<0.001			
DISCERN	*Rho*	0.143	0.426	0.293	0.238	0.842	0.876	-	
	p	0.278	0.035	0.025	0.069	<0.001	<0.001		
LESS	*Rho*	0.220	0.467	0.253	0.291	0.491	0.573	0.591	-
	p	0.093	0.018	0.053	0.025	<0.001	<0.001	<0.001	

DISCUSSION

An important result that has been concluded from this study is that 18.97% of the videos are of poor to very poor quality according to the DISCERN. Also, according to the LESS, 34.49% of the videos are rated as poor or very poor. When the GQS scores are taken into consideration, it is seen that 36.21% of the videos are also of low quality. Also, according to the JAMA criteria, 44.83% of the videos scored 2. The video quality of non-physicians is higher than that of physicians. These findings suggest that the quality of YouTube videos on lateral epicondylitis and arthroscopic surgery is low and the source is unreliable.

The Internet is considered to be a limitless source of information. However, as almost none of the sources are peer-reviewed, the accuracy of the information provided should always be questioned. YouTube is one of the most prominent online social media platforms with videos on almost every topic, including diseases and treatment methods (2). However, the quality of the information found on online platforms is uncertain and uneven, which might mislead the patients and destabilize the relationship between the clinician and the patient (2). Studies evaluating YouTube videos on lateral epicondylitis have shown that the quality of these videos is inadequate (10-12). The results of our study are also similar. It can be cited as evidence that if a patient who is recommended arthroscopy for the treatment of lateral epicondylitis uses YouTube, there is a high probability of accessing incorrect or inadequate information. It might cause confusion and misconception among patients. A possible solution seems to be to lead the patients to the platforms where they can access accurate information and/or to produce Internet resources that provide accurate, detailed, and reliable information by physicians.

In a study evaluating the quality of YouTube videos on carpal tunnel syndrome, the overall reliability and educational quality of YouTube videos were rated as low. However, the quality of videos from academician and physician uploaders or the quality of videos related to surgical techniques and disease-specific information was significantly higher than the other video sources and content (8). In addition, in another study evaluating YouTube videos on lateral epicondylitis, it was determined that the quality of videos from uploaders who were physicians was significantly higher (20). However, in our study, it is seen that the quality of the videos of non-physician uploaders was higher than that of physicians. One of the striking features of this study is the result that the majority of videos included surgical

techniques or surgery-related videos. Arthroscopic surgical videos showed the arthroscopic surgery process and how it was performed. Although it can be thought that these videos might provide useful information regarding surgical techniques, they were of poor quality in terms of patient information related to the nontechnical aspects of surgical treatment. So, it can be stated that videos that provide information about the course of the disease at the very beginning, the indications, the postoperative management process, and complications are required even if the surgical technique is explained. Designing videos by professionals and leading the patients to these videos would be a solution to this issue.

The high number of likes and views on YouTube videos can create a misperception among patients about the quality of the video and it might end in misinformation for the patient (2). A study by Kuru et al. found a negative correlation between the quality of the video and the number of likes, which might indicate that high-quality videos are not as popular as low-quality videos (5). However, there is evidence that low-quality videos are preferred in some studies (21,22). However, the findings of this study seem to be contradictory. There was a positive correlation between the number of likes of the videos and scoring systems. As a result, it can be concluded that patients undergoing arthroscopy for the treatment of lateral epicondylitis are aware of the quality issue. Findings in this study show that these patients were not able to access the quality information they wanted. Thus, it is clear that there is a need for resources that provide quality information for these patients.

This study has some limitations. Firstly, it is known that YouTube might suggest different video rankings specific to a person and location and it is a platform that is constantly updated by newly uploaded videos (5). In this case, it might result in different videos and rankings for each search. In this study, the videos that were searched in a single period have been evaluated. A second limitation might be that only the first 50 videos were evaluated for each search term. However, it is known that it is a previously used method (6). Thirdly, YouTube is mostly known as an entertainment platform and normally it does not require a peer review. The videos uploaded on the platform can be of poor quality because they contain a part of patient education. However, this study has aimed to determine the quality of patient information. Additionally, videos that include a single treatment method and do not provide information about alternatives might also be confusing. Finally, the LESS is a scoring system that has not been used before, and its reliability has not been proven. On the other hand, similar scoring systems have been used in previous studies (6,9). It also showed a positive correlation with other scoring systems.

In conclusion, it is determined that YouTube videos on lateral epicondylitis and arthroscopy are of poor quality. Orthopaedic surgeons are advised to be careful about this problem and should lead the patients to safer sources. Additionally, associations and/or physicians can prepare high-quality educational videos on the subject. So, patients would be able to be directed to these resources.

Declarations

The authors have no conflicts of interest to declare. The authors declared that this study has received no financial support.

Ethical Committee approval is not required for this research because of the research was conducted with publical available data.

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