YouTube as a source of patient information for pterygium surgery

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Abstract

Background: Patients use the YouTube platform to get information about pterygium surgery, and this affects the treatment decisions of the patients.

Objectives: The purpose of this study was to analyze the quality and reliability of YouTube videos as educational resources about pterygium surgery.

Design: This is a register-based retrospective study.

Methods: This was a retrospective, record-based study. A YouTube search was performed using the terms 'pterygium surgery' and 'pterygium eye surgery', resulting in the evaluation of a total of 200 videos. In the end, 122 English-language videos about pterygium surgery were recruited to study. All videos were rated with the DISCERN, the *Journal of the American Medical Association* (JAMA), and the Global Quality Score (GQS) systems.

Results: The mean DISCERN, JAMA, and GQS values were 38.9 ± 10.9, 1.8 ± 0.8, and 2.2 ± 1, respectively. The YouTube videos about pterygium surgery had been uploaded by a physician in 63 (51.6%) and non-physicians in 59 (48.4%) cases. There was no significant difference between the two groups in terms of general characteristics and scores.

Conclusions: Our results show that YouTube videos about pterygium surgery have low quality and credibility and are not sufficient in terms of providing patient information.

Registration: Not applicable.

Introduction

Internet and social media tools that facilitate access to information have become an indispensable part of life.[1] One of the most popular social media tools is the video sharing site YouTube. Patients have gradually become more interested in YouTube videos to obtain information on their disease and make decisions about their treatment. YouTube has approximately 1 billion users and gets approximately 6 billion views every month according to recent reports.[2] Physicians, health care providers, patients, and health care institutions in particular share health-related videos for various purposes such as education, advertising, and providing information. The quality, reliability, and educational features of the shared videos can vary widely and may result in the patients being misled.[3] As there is no mechanism that can control the quality and reliability of the videos, it can become difficult to access the correct information about diseases and their treatment. Therefore, it is very important to ensure the quality and reliability of YouTube videos.

Pterygium is an inflammatory and degenerative disease characterized by the uncontrolled growth of the conjunctiva onto the cornea.[4] Excessive free radical accumulation and a photochemical reaction due to chronic exposure to ultraviolet rays are blamed in the etiology.[5] The mechanism of tissue proliferation in the pathogenesis of pterygium is still not fully elucidated. Visual disturbances due to the progression of the pterygium toward the center of the cornea, and ocular

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surface symptoms due to deterioration in the tear film layer may occur.[6] The treatment is surgical.

Patients found to be suitable for pterygium surgery tend to attempt to access information, which can be of low quality and unreliable, by going to surgical or educational video contents on YouTube in order to get information about the surgical procedure techniques. This may lead to misdirection of patients in their treatment decision. Evaluating the content of pterygium surgery videos on YouTube could reveal the quality and reliability of such videos. Therefore, we aimed to investigate the quality and credibility of YouTube videos about pterygium surgery and their effects on patient information in the current study.

Materials and methods

Our retrospective study based on the evaluation of publicly shared videos on YouTube did not require ethics committee approval. The most commonly searched words about pterygium surgery on YouTube worldwide were found to be 'pterygium surgery' and 'pterygium eye surgery' in Google trends. The first search was on 1 May 2022, without making any changes in the normal search preferences and after selecting the 'sort by relevance' option, using the terms 'pterygium surgery' and 'pterygium eye surgery'. As most video viewers on YouTube only watch the top videos, we added the top 200 videos based on our search results to the playlist. Finally, 122 English-language videos about pterygium surgery that met the study criteria were included in the study. Similar and irrelevant videos; videos with the comment functions, like, and dislike blocked; and videos less than 20 s were not included in the study. The videos were evaluated and scored in a double-blind manner by two experienced ophthalmologists (C.O. and M.B.). The number of views of the videos, the number of comments, the number of likes and dislikes, the time since the upload (age), the length of the video (length), the view rate (the number of views per day), the source of the video (doctor, patient, health channel, health care institute), and the content of the video (real surgical procedure, doctor's explanation of the treatment, patient experiences, animations) were evaluated, and the data were recorded. The video power index (VPI = likes / (likes + dislikes) $\times$ 100) was used for the measurement of the power of the videos. All videos were scored with the DISCERN, *Journal of the American Medical Association* (JAMA), and Global Quality Score (GQS) systems.

DISCERN, as shown in Table 1, is a scoring system consisting of three parts and 16 questions and has been developed by the University of Oxford.[7] The reliability of the videos is evaluated in the first part. The quality of the information about treatment options in the videos is evaluated in the second part. There is one question where the videos are evaluated in general in the third part. The DISCERN scoring system result range is 15–75, and the result is classified as excellent (63–75 points), good (51–62 points), reasonable (39–50 points), poor (27–38 points), or very poor (15–26 points).[7] The JAMA score is used to evaluate the quality of knowledge of websites about health. As shown in Table 2, it includes four criteria, each scored between 0 and 1 (authorship, attribution, disclosure, and currency), and 4 points indicate high quality.[8] The GQS developed by Bernard *et al.*[9] is shown in Table 2 and is used for the interpretation of the information in the videos and evaluation of the general quality with a scoring range of 1–5 points. The Global Quality Scale is a 5-point scale ranging from 1 ('low quality') to 5 ('high quality'); videos were considered high quality (4 or 5), medium quality (3), or low quality (1 or 2).

The SPSS software (IBM, version 22) was used for the statistical analysis of all data. Compliance with the normal distribution was evaluated with the 'Kolmogorov-Smirnov' test. Data that could be measured and met the parametric condition were given as mean $\pm$ standard deviation. For data that could be measured and did not meet the parametric condition, the distribution was defined as median (min–max). Categorical variables were shown as numbers and percentages (%). The independent-samples t-test was used for the data that met the parametric condition, and the Mann–Whitney U test was used for those meeting the non-parametric condition in the comparison of the data between two groups. Spearman's correlation test was used to evaluate the correlation of data with each other. A p value < 0.05 was accepted as significant.

Results

A total of 200 videos were added to the playlist in our study, and 78 videos that did not meet the inclusion criteria were eliminated. Descriptive

Table 1. DISCERN scoring system.

Question number	What is investigated?	Question rating				
		No partially			**Yes**	
Section 1	Is the publication reliable?					
1	Are the aims clear?	1	2	3	4	5
2	Does it achieve its aims?	1	2	3	4	5
3	Is it relevant?	1	2	3	4	5
4	Is it clear what sources of information were used to compile the publication (other than the author or producer)?	1	2	3	4	5
5	Is it clear when the information used or reported in the publication was produced?	1	2	3	4	5
6	Is it balanced and unbiased?	1	2	3	4	5
7	Does it provide details of additional sources of support and information?	1	2	3	4	5
8	Does it refer to areas of uncertainty?	1	2	3	4	5
Section 2	How good is the quality of information regarding treatment choices?					
9	Does it describe how each treatment works?	1	2	3	4	5
10	Does it describe the benefits of each treatment?	1	2	3	4	5
11	Does it describe the risks of each treatment?	1	2	3	4	5
12	Does it describe what would happen if no treatment is used?	1	2	3	4	5
13	Does it describe how the treatment choices affect overall quality of life?	1	2	3	4	5
14	Is it clear that there may be more than 1 possible treatment choice?	1	2	3	4	5
15	Does it provide support for shared decision making?	1	2	3	4	5
Section 3	Overall rating of the publication					
16	Based on the answers to all of these questions, rate the overall quality of the publication as a source of information about treatment choices	1, 2, 3 Low moderate			4, 5 High	

DISCERN, Quality Criteria for Consumer Health Information.

characteristics of the 122 videos are shown in Table 3. According to the video source, 63 (51.6%) had been uploaded by physicians, 42 (34.4%) by health care–related channels, 14 (11.4%) by medical centers, and the remaining 3 (2.6%) by patients. According to the video content, 47 (38.5%) contained actual surgery, 37 (30.4%) explanations of health care professionals about treatment, 24 (19.6%) surgical experiences of the patients, and 14 (11.5%) animations about the surgery.

For all the videos analyzed, the mean DISCERN score was 38.9 ± 10.9, the mean JAMA score 1.8 ± 0.8, and the mean GQS 2.2 ± 1. The mean scores were 36.3 ± 9.4, 2 ± 0.9, and

Table 2. JAMA and Global Quality Scoring system.

JAMA score	
Authorship	Authors and contributors, their affiliations, and relevant credentials should be provided
Attribution	References and sources for all content should be listed clearly, and all relevant copyright information should be noted
Disclosure	Website 'ownership' should be prominently and fully disclosed, as should any sponsorship, advertising, underwriting, commercial funding arrangements or support, or potential conflicts of interest
Currency	Dates when content was posted and updated should be indicated
Global Quality Score	
1	Poor quality, very unlikely to be of any use to patients
2	Poor quality but some information present, of very limited use to patients
3	Suboptimal flow, some information covered but important topics missing, somewhat useful to patients
4	Good quality and flow, most important topics covered, useful to patients
5	Excellent quality and flow, highly useful to patients

JAMA, *Journal of the American Medical Association*.

2 ± 1, respectively, for the videos uploaded by the doctors and 40.7 ± 11.7, 1.7 ± 0.8, and 2.3 ± 1 for the videos uploaded by non-physicians. Difference between the two groups according to the DISCERN, GQS, and JAMA values was not statistically significant ($p = 0.2$, 0.3, and 0.3, respectively, Table 4). Difference between the groups was also not significant according to other parameters.

Table 5 presents the correlation between the DISCERN Score, JAMA Score, GQS, View Rates, VPI, Video Age, View Counts, Likes, and Dislikes. A positive correlation was present between the DISCERN, JAMA, and GQS values. A significant positive correlation was present between the DISCERN value and the view rate and also the JAMA value and the number of likes. A significant negative correlation was present between the view rate and the video age and also the VPI and the view rate.

Discussion

The widespread use of the Internet has resulted in the patients accessing information about the treatment of their diseases more easily.[10] The YouTube video sharing site, one of the most frequently used websites, has made this access even easier. Videos can be recorded and watched repeatedly on the site. Although this may seem like an advantage for the patients as regards accessing information, not all of those who share such video content are health care professionals, and some independent content producers can convey false information, resulting in misinformation and misdirection of the patients. Unfortunately, there are no filters to make this distinction on the YouTube platform. Besides, not every video about health aims to inform the patients and some videos have been uploaded for the training of health care professionals. The application of filters such as 'for patient training' or 'for the training of health care professionals' could be beneficial in ensuring that patients can access reliable information.

Pterygium is a degenerative disease caused by atypical orientation of conjunctival tissue on the cornea.[4] It is more common in regions with a hot and dry climate.[6] The treatment is surgery. Patients with pterygium who are recommended surgery can use the YouTube platform to obtain information about the procedure. In this case, the quality and credibility of the YouTube videos about pterygium surgery and their role in patient

Table 3. Descriptive characteristics of the analyzed videos ($N = 122$).

Variables	Value
View count (n)[a]	2477 (21–132,720)
Like (n)[a]	25 (1–2000)
Dislike (n)[a]	0 (0–77)
Comment (n)[a]	4 (0–234)
Source of the video, n (%)	
Doctor	63 (51.6)
Patient	3 (2.6)
Medical center	14 (11.4)
Health channel	42 (34.4)
Video length (min)[a]	5.2 (0.4–60)
Age (day)[a]	678 (254–3527)
View rate[a]	5 (0–115)
VPI[a]	100 (63–100)
DISCERN[b]	38.9 (± 10.9)
JAMA[b]	1.8 (± 0.8)
GQS[b]	2.2 (± 1)

DISCERN, Quality Criteria for Consumer Health Information; GQS, Global Quality Score; JAMA, *Journal of the American Medical Association*; VPI, video power index.
[a]Not normally distributed data are given as median (range).
[b]Normally distributed data are given as mean (± standard deviation).

training become very important. We did not find a study in the literature where YouTube videos about pterygium surgery had been evaluated, and our study is a first in this field. The DISCERN, JAMA, and GQS were used to determine the quality and credibility of YouTube videos in our current study, as in many other studies.[11,12] The respective scores were 38.9 ± 10.9 (i.e. poor), 1.8 ± 0.8 (i.e. poor), and 2.2 ± 1 (i.e. poor). These results indicate that YouTube videos about pterygium surgery are of low quality and insufficient in terms of patient training.

The reliability and quality of YouTube videos on eye diseases and their treatments have been investigated in many studies.[11–19] Sakallioğlu and Garip[11] have reported in their study on YouTube videos on dry eye that only a small portion of the videos were of good quality, and that the videos of medical institutes and academic centers were of higher quality than the videos of physicians. Bae and Baxter[12] have evaluated YouTube videos on cataract surgery and found them inadequate in terms of patient training. Kuçuk and Sirakaya[13] have stated that YouTube videos on refractive surgery were generally not an educational resource for patients. Altunel and Sirakaya[14] have found YouTube videos on multifocal IOLs (intraocular lenses) to be generally of poor quality and inadequate for patient training. Kalaycı *et al.*[15] have found that YouTube videos provided inadequate information to patients about keratoplasty. Abdelmseih *et al.*[16] have found 60% of the videos to be somewhat useful, 35% to be illusory, and 5% to be unrelated in their study where they investigated YouTube videos about age-related macular degeneration. Yıldız *et al.*[17] have reported that most YouTube videos on soft contact lenses were of poor quality and reliability, and contained inadequate information. Songur and Citirik[18] have evaluated YouTube videos on retinal detachment surgery and reported the quality of the videos to be poor and the quality of information they provide to be low. Bozali and Yalinbas Yeter[19] argued in their study where they investigated videos on keratoconus that the videos were not adequate as a source of information and did not make a contribution to the patients. We similarly found in our study that YouTube videos on pterygium surgery were of low quality and reliability, and inadequate in terms of providing patient information.

Apart from eye diseases, many studies have been conducted to evaluate YouTube videos on other diseases and their treatments.[20–24] Ozsoy-Unubol and Alanbay-Yagci[20] have evaluated fibromyalgia-related videos and found most of them to be of poor quality, warning that health care professionals should be aware of the importance of health-related information on YouTube and provide high-quality, accurate, and up-to-date content. Onder and Zengin[21] reported that the vast majority of videos about gout contain useful information. Elangovan *et al.*[22] similarly reported that most YouTube videos about spondyloarthritis contain useful information. Onder *et al.*[23] evaluated videos on osteoporosis and found that most videos were of sufficient quality and contained useful information. Radonjic *et al.*[24] evaluated YouTube videos on abdominal aortic aneurysms and reported that the videos were inadequate as regards providing information to patients.

Table 4. Comparison of the data between groups with and without a doctor as the video source.

Variables	Group 1, doctor (*n* = 63)	Group 2, non-doctor (*n* = 59)	*p*
View count (n)[a]	1427 (39–48,234)	3157 (21–132,720)	0.7
Like (n)[a]	45 (1–1300)	13 (1–2000)	0.3
Dislike (n)[a]	0 (0–16)	0 (0–77)	0.9
Comment (n)[a]	7 (0–181)	3 (0–234)	0.4
Video length (min)[a]	6 (0.42–60)	4.8 (0.43–60)	0.3
Age (day)[a]	742 (254–2703)	625 (254–3527)	0.8
View rate[a]	8 (0–115)	3 (0–94)	0.2
VPI[a]	100 (86–100)	100 (63–100)	0.9
DISCERN[b]	36.3 (± 9.4)	40.7 (± 11.7)	0.2
JAMA[b]	2 (± 0.9)	1.7 (± 0.8)	0.3
GQS[b]	2 (± 1)	2.3 (± 1)	0.3

DISCERN, Quality Criteria for Consumer Health Information; GQS, Global Quality Score; JAMA, *Journal of the American Medical Association*; VPI, video power index.
[a]Not normally distributed data are given as median (range).
[b]Normally distributed data are given as mean (± standard deviation).

Table 5. Correlation between DISCERN, GQS, JAMA, view rates, VPI, view counts, video age, number of likes and dislikes.

	DISCERN	JAMA	GQS	VPI	View rate	View count	Likes	Dislikes	Age
DISCERN	–	*r* = 0.48	*r* = 0.76	*r* = 0.01	*r* = 0.36	*r* = 0.15	*r* = 0.21	*r* = 0.22	*r* = –0.15
		***p* < 0.001**	***p* < 0.001**	*p* = 0.901	***p* = 0.009**	*p* = 0.276	*p* = 0.127	*p* = 0.121	*p* = 0.301
JAMA	–	–	*r* = 0.544	*r* = –0.06	*r* = 0.23	*r* = 0.13	*r* = 0.29	*r* = 0.09	*r* = –0.104
			***p* < 0.001**	*p* = 0.656	*p* = 0.105	*p* = 0.341	***p* = 0.035**	*p* = 0.493	*p* = 0.471
GQS	–	–	–	*r* = –0.19	*r* = 0.27	*r* = 0.19	*r* = 0.21	*r* = 0.23	*r* = –0.22
				p = 0.172	*p* = 0.054	*p* = 0.179	*p* = 0.130	*p* = 0.099	*p* = 0.122
VPI	–	–	–	–	*r* = –0.41	*r* = –0.11	*r* = 0.17	*r* = 0.02	*r* = –0.12
					***p* = 0.003**	*p* = 0.458	*p* = 0.233	*p* = 0.882	*p* = 0.408
View rate	–	–	–	–	–	*r* = 0.11	*r* = 0.17	*r* = 0.15	*r* = –0.29
						p = 0.478	*p* = 0.233	*p* = 0.271	*p* = 0.037

Bold *p* values indicate statistically significant.
DISCERN, Quality Criteria for Consumer Health Information; GQS, Global Quality Score; JAMA, *Journal of the American Medical Association*; *r*, correlation value according to Spearman's correlation test; VPI, video power index.

In the current study, no significant difference was present between the uploads by doctors and non-doctors according to the DISCERN, GQS, and JAMA results. Similarly, Küçük and Sirakaya[13] found that there is no significant difference between the uploads by doctors and non-doctors according to the DISCERN, JAMA, and GQS results. In contrast, Sayın *et al.*[25] found the DISCERN, GQS,

and JAMA rates of uploads by doctors to be significantly more than those by non-doctors.

The most important indicator of the popularity of a YouTube video is the view count.[13] We did not find a significant difference in terms of view count between the videos of physicians and non-physicians in this study, indicating that patients do not prioritize videos by physicians when searching for videos to watch. The view rate is the parameter that shows how current a video is and VPI shows the power and popularity. However, the view rate and VPI did differ between the videos by physicians and non-physicians.

Correlation between the DISCERN, GQS, and JAMA was significantly positive in our study. Similarly, Kalaycı et al.[15] have reported the scoring systems to be positively correlated among themselves in their study. We found a significant positive correlation between the DISCERN value and the view rate in the current study, indicating that up-to-date videos are of better quality and more reliable. A significant positive correlation was also present between the JAMA value and the number of likes, indicating that videos of high quality are liked more. Besides, the significant negative correlation between view rate and video age demonstrates lower interest in older videos.

A total of 47 videos (38.5%) contained the actual surgical procedure, and these videos attracted more attention from the patients. However, these videos were usually uploaded for the training of health care professionals and were inadequate as regards providing patient information. Thirty-seven videos (30.4%) contained explanations by health care professionals about the treatment. Some of these videos were uploaded to inform the patients while some were uploaded for the training of healthcare professionals. Filtering these videos as 'for patient training' or 'for the training of the healthcare professionals' could prevent patients from being misinformed. Twenty-four videos (19.6%) contained the surgical experiences of the patients. Such surgical experiences are very valuable in terms of obtaining information, but misrepresenting these experiences for advertising purposes causes patients to be misled. Fourteen videos (11.5%) contained animations related to the surgery.

The limitations of our study can be listed as searching only videos in English, evaluating a low number of videos and evaluating videos within a certain time period.

In conclusion, our findings show that the majority of YouTube videos about pterygium surgery are of low quality and reliability, and are inadequate in terms of informing the patients. Health care professionals should make sure that the videos they upload are objective and of high quality, and should not ignore informing the patients properly while uploading these videos. Besides, it is very important for YouTube administrators to collaborate with health care professionals in order to uncover and remove the videos that result in misinformation.

Authors' note
The manuscript has not been presented in a conference.

Declarations

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References

1. Aiello AE, Renson A and Zivich PN. Social media- and internet-based disease surveillance for public health. *Annu Rev Public Health* 2020; 41: 101–118.

2. Drozd B, Couvillon E and Suarez A. Medical YouTube videos and methods of evaluation: literature review. *JMIR Med Educ* 2018; 4: e3.

3. Sechrest RC. The internet and the physician-patient relationship. *Clin Orthop Relat Res* 2010; 468: 2566–2571.

4. Chu WK, Choi HL, Bhat AK, *et al*. Pterygium: new insights. *Eye* 2020; 34: 1047–1050.

5. Wanzeler ACV, Barbosa IAF, Duarte B, *et al*. Mechanisms and biomarker candidates in pterygium development. *Arq Bras Oftalmol* 2019; 30: 528–536.

6. Ye F, Zhou F, Xia Y, *et al*. Evaluation of meibomian gland and tear film changes in patients with pterygium. *Indian J Ophthalmol* 2017; 65: 233–237.

7. Charnock D, Shepperd S, Needham G, *et al*. DISCERN: an instrument for judging the quality of written consumer health information on treatment choices. *J Epidemiol Community Health* 1999; 53: 105–111.

8. Silberg WM, Lundberg GD and Musacchio RA. Assessing, controlling, and assuring the quality of medical information on the internet: caveant lector et viewor – let the reader and viewer beware. *JAMA* 1997; 277: 1244–1245.

9. Bernard A, Langille M, Hughes S, *et al*. A systematic review of patient inflammatory bowel disease information resources on the World Wide Web. *Am J Gastroenterol* 2007; 102: 2070–2077.

10. ReFaey K, Tripathi S, Yoon JW, *et al*. The reliability of YouTube videos in patients education for glioblastoma treatment. *J Clin Neurosci* 2018; 55: 1–4.

11. Sakallioğlu AK and Garip R. What hundreds of millions of patients with dry eye will find on YouTube: a quality and reliability research of the YouTube videos. *Cornea* 2022; 41: 1016–1022.

12. Bae SS and Baxter S. YouTube videos in the English language as a patient education resource for cataract surgery. *Int Ophthalmol* 2018; 38: 1941–1945.

13. Kuçuk B and Sirakaya E. An analysis of YouTube videos as educational resources for patients about refractive surgery. *Cornea* 2020; 39: 491–494.

14. Altunel O and Sirakaya E. Evaluation of YouTube videos as sources of information about multifocal intraocular lens. *Semin Ophthalmol* 2021; 36: 423–428.

15. Kalayci M, Cetinkaya E, Suren E, *et al*. Are YouTube videos useful in informing patients about keratoplasty? *Semin Ophthalmol* 2021; 36: 469–474.

16. Abdelmseih M. Evaluation and reliability of YouTube videos for age-related macular degeneration (AMD) – a warning sign! *Clin Experiment Ophthalmol* 2016; 7: 5.

17. Yildiz MB, Yildiz E, Balci S, *et al*. Evaluation of the quality, reliability, and educational content of YouTube videos as an information source for soft contact lenses. *Eye Contact Lens* 2021; 47: 617–621.

18. Songur MS and Citirik M. Evaluation of the usefulness of YouTube videos on retinal detachment surgery. *Cureus* 2021; 13: e19457.

19. Bozali E and Yalinbas Yeter D. Assessment of YouTube videos as an information resource for keratoconus patients. *J Fr Ophtalmol* 2021; 44: 1545–1552.

20. Ozsoy-Unubol T and Alanbay-Yagci E. YouTube as a source of information on fibromyalgia. *Int J Rheum Dis* 2021; 24: 197–202.

21. Onder ME and Zengin O. YouTube as a source of information on gout: a quality analysis. *Rheumatol Int* 2021; 41: 1321–1328.

22. Elangovan S, Kwan YH and Fong W. The usefulness and validity of English-language videos on YouTube as an educational resource for spondyloarthritis. *Clin Rheumatol* 2021; 40: 1567–1573.

23. Onder ME, Onder CE and Zengin O. Quality of English-language videos available on YouTube as a source of information on osteoporosis. *Arch Osteoporos* 2022; 17: 19.

24. Radonjic A, Fat Hing NN, Harlock J, *et al*. YouTube as a source of patient information for abdominal aortic aneurysms. *J Vasc Surg* 2020; 71: 637–644.

25. Sayin O, Altinkaynak H, Adam M, *et al*. Reliability of YouTube videos in vitreoretinal surgery. *Ophthalmic Surg Lasers Imaging Retina* 2021; 52: 478–483.