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Circumcision Surgery on YouTube™: A Quality Assessment

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What's known on the subject? and What does the study add?

The study assesses the quality and reliability of YouTube™ videos on the "circumcision" procedure. The study emphasizes the necessity for professionals to contribute better-quality, reliable content on YouTube™ for improved educational value regarding circumcision surgery.

Abstract

Objective: With numerous informative videos for patients and surgeons, Youtube™ is the most popular video sharing website worldwide. The aim of this study was to evaluate the quality and reliability of videos related to the "circumcision" procedure on Youtube™.

Materials and Methods: The keyword "circumcision" was searched on the Youtube™ search engine, and those in English were included according to the inclusion criteria sorting by relevance. Basic data (such as number of views and upload sources) of these videos were recorded. Videos were assessed by four independent urologists using the global quality scale (GQS) for quality and the validated 5-question Modified DISCERN scoring for reliability.

Results: A search for "circumcision" on Youtube™ search engine identified 800 videos, of which 155 videos were included in the study. Most videos were uploaded by individual users/patients (42.6%). The mean GQS score of the videos was low (2.30±0.99) and the mean modified DISCERN score was also low (1.71±1.10). The GQS and modified DISCERN scores of videos uploaded by physicians/professional organizations/universities were significantly higher than those of other uploaders ($p<0.01$). There was no correlation between GQS and modified DISCERN scores and duration, number of views, and number of likes of the videos ($p>0.05$).

Conclusion: Most of the videos related to circumcision surgery on Youtube™ platform were uploaded by patients, and the upload rate of healthcare professionals was significantly low. The uploaded videos are of poor quality, and healthcare professionals should produce better quality, reliable, and up-to-date content.

Keywords: Youtube™, circumcision, quality, reliability, global quality scale, modified DISCERN

Introduction

The Internet provides quick access to information to patients and clinicians. In the last quarter of the last century, with the discovery of the internet, various social media platforms emerged, and the most widespread and fastest information was accessed from these platforms. One of the most frequently used social media applications is Youtube™, created in 2005 and has more than 1 billion current users (1). On this platform, users upload videos related to different content from all over the world, and billions of hours of video content are watched every day. Youtube™ platform is frequently preferred to obtain visual and auditory information about surgical procedures and other medical issues. However, some videos uploaded to this platform contain unnecessary information and mislead the viewers.

Circumcision is defined as the surgical cutting of the preputium surrounding the glans penis to expose the glans. Dating back at least 6.000 years, circumcision can today be performed for medical indications and for religious and cultural reasons. Although circumcision is considered a simple surgical procedure, it may result in serious complications, and additional interventions may be required. Therefore, parents should have access to quality and accurate information about the risks and benefits of circumcision (2).

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In many previous studies, the content and quality of videos on Youtube™ related to urological problems were evaluated, and it was observed that the existing videos were deficient in terms of providing accurate and necessary information to people (3,4).

Because Youtube™ is the most frequent reference source by both patients and clinicians, in this study, we aimed to evaluate the quality and reliability of circumcision videos on Youtube™ platform.

Materials and Methods

After the Non-Interventional Clinical Research Ethics Committee of Kütahya Health Sciences University has granted ethical approval; on 1st March 2022, we searched the Youtube™ search engine using the keyword "circumcision". No filter was used while sorting the videos, and the sorting was performed according to the "relevance" level. The exclusion criteria used in previous similar studies were also applied in our study (5,6). Accordingly, 800 videos, sorted by relevance, were reviewed by 4 independent urologists. Non-English, repetitive, irrelevant, and soundless videos were excluded from the study. Finally, 155 videos were included and further analyzed (Figure 1). Upload source, number of views, likes or comments, length, upload time, and number of views, comments and likes of each video were recorded. The videos were categorized into four categories according to their sources;

1. Physicians/professional organizations/universities,

2. Stand-alone health information websites,

3. Medical advertisements/for-profit organizations,

4. Individual users/patients.

In addition, the videos were grouped into three different categories according to the content of the topics: Those related to treatment, those containing general information about circumcision, and those containing both treatment and general information. In the evaluation of the reliability of the videos, the validated 5-question Modified DISCERN scoring was used (7,8). The original DISCERN scoring is a 15-question questionnaire developed by Charnock et al. (9) to assess the quality of information about health problems and treatment options. In the modified DISCERN scoring, 5 questions with yes/no answers and 1 point for each "yes" answer are asked. Because of the scoring, the reliability of the videos is evaluated as "high" if the score is above 3, "intermediate" if the score is 3, and "low" if the score is below 3.

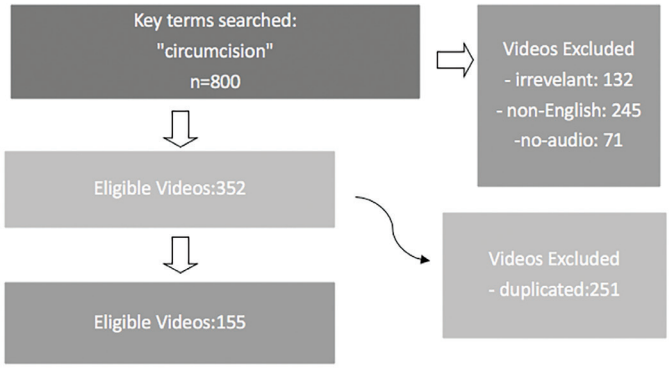

Figure 1. Selection of appropriate Youtube videos for the study

The global quality scale (GQS) is a scale that evaluates the quality, flow, and benefit of the information in the videos for patients and was preferred in our study. In this scale, which has 5 different levels and each video is scored from 1 to 5, 4 and 5 points indicate high quality, 3 points indicate medium quality, and 1 and 2 points indicate low quality (5,10).

Modified DISCERN Scale

(1 point for every Yes, 0 point for No)

*Are the aims clear and achieved?

*Are reliable sources of information used?

*Is the information presented balanced and unbiased?

*Are additional sources of information listed for patient reference?

*Are areas of uncertainty mentioned?

Global Quality Scale (GQS)

Description

1. Poor quality, poor flow of the video, most information missing, not at all useful for patients.

2. Generally poor quality and poor flow, some information listed but many important topics missing, and of very limited use to patients.

3. Moderate quality, suboptimal flow, some important information is adequately discussed but others poorly discussed, somewhat useful for patients.

4. Good quality and generally good flow. Most of the relevant information is listed, but some topics not covered, useful for patients.

5. Excellent quality and flow, very useful for patients.

Statistical Analysis

Statistical analysis was performed using SPSS software version 26 (IBM SPSS Corp.; Armonk, NY, USA). The normality test of continuous variables was analyzed using the Kolmogorov-Smirnov test. Also, skewness and kurtosis values of GQS and

DISCERN scores were used to analyze if they were normally distributed (between 0.25 and -0.85, between 1.98 and 2.17, respectively). Number, percentage, mean, and standard deviation were used for descriptive statistics. The ANOVA test was used to compare the groups according to the modified discern score. The Pearson correlation test was used to analyse the relationship between the Modified Discern score and GQS score. For statistical significance, p<0.05 was accepted.

Results

In the study, 155 videos were analyzed. The general characteristics of the videos are presented in Table 1. Most videos (42.6%) were uploaded by individual users/patients. There were mostly treatment-related videos (51%). When the scores evaluating the quality and content of the videos were analyzed, the mean GQS score was 2.30±0.99 and the mean-modified DISCERN score was 1.71±1.10. The GQS and modified DISCERN scores of videos uploaded by physicians/professional organizations/universities were significantly higher than those of the others (p<0.01). The lowest scores were found in videos uploaded by individual users/patients (Table 2).

When we classified the videos as low, intermediate, and highly reliable according to modified DISCERN scoring, 128 (82.58%) of the videos were evaluated as low quality, 8 (5.16%) as intermediate quality, and 19 (12.25%) as high quality. According to these scoring groups (low, intermediate and high quality), the video durations of the groups were similar (p=0.290). Similarly, the number of views (p=0.911) and comments (p=0.538) were similar. The number of likes was significantly higher in the videos evaluated in the intermediate quality group (p<0.001) (Table 3).

A positive correlation was found between GQS and modified DISCERN scores (r=0.85, p<0.01). No significant correlation was found in the correlation analysis between GQS and modified DISCERN scores and video duration, number of views, and number of likes (Table 4).

Table 1. General information of circumcision videos on YouTube

Source of video	**n**	**%**
• Physicians/professional organisations/universities	40	25.8
• Stand-alone health information websites	33	21.3
• Medical advertisements/for-profit organisations	16	10.3
• Individual users/patients	66	42.6
Video content		
• Treatment	79	51.0
• General information	57	36.8
• Both of them	19	12.3
Features of video	**Mean ± SD**	**Min-Max**
• Duration (second)	477.65±45.40	28-4865
• Time since upload (month)	46.74±3.32	1-186
• Number of views	540.283±188.115	1145-182.000.000
• Number of comments	917.03±118.10	0-14.860
• Number of likes	1680.93±304.81	1-28.000
• GQS score	2. 30±0. 99	1-5
• Modified DISCERN score	1.71±1.10	0-4.5

GQS: Global quality score, SD: Standard deviation, Min-Max: Minimum-Maximum

Table 2. Quality and reliability assessment of videos according to their sources

	Physicians/professional organisations/ universities	**Stand-alone Health information websites**	**Medical advertisements/for -profit organisations**	**Individual users/patients**	p
GQS score	2.98±0.68[a]	2.67±0.57[a]	2.19±0.94[b]	1.73±0.99[b]	<0.001*
Modified DISCERN score	2.49±0.86[a]	2.19±0.66[a]	1.78±1.10[a]	0.96±0.93[b]	<0.001*

*: One-Way ANOVA, GQS: Global quality score, [a-b]: Tukey test was used for Post-hoc test. Individual users/patients were compared to other groups

Table 3. Comparison of the sources and characteristics of the videos according to the modified DISCERN classification				
Source of video (n)	**Modified DISCERN classification**			
	Low	**Intermediate**	**High**	
• Physicians/Professional organisations/Universities	26	4	10	
• Stand-alone health information websites	26	2	5	
• Medical advertisements/for-profit organisations	13	1	2	
• Individual users/patients	63	1	2	
Total	128	8	19	
Features of videos (mean ± SD)				p
Duration	466.51±575.43[a]	282.00±168.77[a]	634.52±570.87[a]	0.290*
Number of views	576.828±239.24[a]	312.530±355.550[a]	377.754±666.553[a]	0.911*
Number of comments	986.25±231.42[a]	989.75±158.89 [a]	320.46±92.01[a]	0.538*
Number of likes	1592.24±3439.70[a]	5799.43±8314.76[b]	680.44±763.16[a]	<0.01*

*: One-Way ANOVA, [a-b]: Tukey test was used for Post-hoc test, SD: Standard deviation

Table 4. Correlation analyses for modified DISCERN scores and GQS score with features of video				
	GQS score		**Modified DISCERN score**	
	r	**p**	**r**	**p**
GQS	-	-	0.85	<0.01**
Modified DISCERN	0.85	<0.01	-	-
Video duration	0.02	0.728	-0.01	0.893**
Number of view	0.09	0.277	0.12	0.161**
Number of likes	0.1	0.228	0.01	0.851**

**Pearson correlation, GQS: Global quality score

Discussion

Circumcision is one of the most common surgical procedures, and it is estimated that 38% of men are circumcised worldwide (11). In Muslim and Jewish societies, circumcision is usually performed for religious reasons. Apart from religious and cultural reasons, circumcision is also performed for medical purposes in the presence of pathological phimosis and paraphimosis, recurrent urinary tract infections, urological congenital anomalies (vesicouretheral reflux, posterior urethral valve, congenital hydronephrosis), and after some penile traumas. Although circumcision is performed using different surgical techniques, complications develop at a rate of 1-4% (12). For this reason, parents want to be informed about the circumcision procedure before the operation, and the internet is their first choice as a source of information.

Youtube™ is an open-access video-sharing platform that is the most widely known worldwide and contains educational content on different subjects for individuals. More than 1 billion hours of content are watched and thousands of content are produced on this platform every day (6). While searching on the Youtube™ platform, there are comprehensive filters and their relevance, upload date of the videos, number of views, and rating. Apart from this, filtering can be done with image quality such as 4K and HD. There are also many videos on Youtube™ related to healthcare topics, but these videos are controversial in terms of quality and reliability because they are easily uploaded by individuals and institutions in a non-standardised manner (13).

Thus far, many studies have been conducted to evaluate the quality of urology-related videos on Youtube™. To the best of our knowledge, our study is the second in the literature evaluating the quality of circumcision-related videos on Youtube™ (14). In this study, we aimed to answer the following questions: What are the most common sources of circumcision-related videos? What do the videos include as subjects? Is there a relationship between the sources of the videos and their quality? Do features such as the number of views, comments, and likes reflect the quality of the videos?

In a study evaluating Youtube™ videos on male infertility, 72% of the videos were uploaded by healthcare organizations and practitioners, whereas 28% were uploaded by patients and individual users (15). In another study evaluating videos on bladder cancer, it was observed that 57% of the videos were uploaded by doctors/health professionals (16). In a Youtube™ video analysis study on the surgical treatment

of benign prostatic hyperplasia, 69.2% of the videos were provided by healthcare professionals (doctor, clinic, hospital or university) (17). Interestingly, in contrast to other studies, in our study, we found that the most common source of circumcision-related videos was individual users/patients (42.6%), followed by physicians/professional organizations/universities with 25.8% and standalone health information websites with 21.3%. The rarest video source was medical advertisements/for-profit organizations (10.3%). Unlike other studies, the fact that the most frequent video uploaders in this study were individual users/patients suggests that circumcision is of great importance in society and that there is a need to share it.

In a study in which videos related to nocturnal enuresis were evaluated, it was observed that the most common video content was general information (symptoms, etiology and treatment) (33.3%) (18). In nephrolithiasis videos, the most common content was related to medical treatment and passage of stones (36%), followed by prevention, diet, and hydration (28%) (19). There are many treatment options for circumcision surgery, and parents frequently question the method of circumcision. In our study, in support of this, it was observed that videos related to treatment were the most common content (51%), followed by general information videos with a rate of 36.8%.

In our study, we used Modified DISCERN and GQS scoring systems, which are also used in other Youtube™ quality and reliability studies. In the reliability analysis according to modified DISCERN scoring, most of the videos had low quality (82.58%). In the study of Duran and Kizilkan (5) on video analysis related with testicular cancers, the rate of high-quality videos was 9.9%, which was similar to the results in our study. In another study by Fode et al. (20), in which erectile dysfunction-related videos were evaluated, more than 80% of the videos were of low and moderate quality. In our study, the primary source of the videos evaluated as high quality according to GQS and modified DISCERN scores was found to be physicians/professional organizations/universities. The lowest scores were obtained for videos uploaded by individual users/patients. In Youtube™ studies on different topics, it was determined that videos uploaded by physicians, universities, and academic sources were of higher quality and more reliable (21,22). The results of these studies show us that when using Youtube™ as a source of information, the uploaders of the videos should also be considered to obtain accurate and high-quality information. However, 20.3% of the low-quality videos in our study were uploaded by physicians/professional organizations/universities. Accordingly, it should be kept in mind that the sources of the videos are not always decisive, and videos uploaded by healthcare professionals may also be of low quality.

In our study, no correlation was found between the number of views and likes of the videos and GQS and modified DISCERN scores. In addition, the durations of the videos were similar in all three quality groups as low, intermediate, and high quality according to modified DISCERN scoring. Similar to our study, Culha et al. (23) and Selvi et al. (24) showed that there was no significant difference between the quality scores and duration of the videos. On the contrary, there were studies in the literature showing that videos evaluated as high quality were longer (5,21).

Study Limitations

The results related to video duration show that although the longer the video duration, the more likely it is that the video will be explained in more detail, it should also be considered that the viewers may be distracted and bored. What is important for a patient information video is to explain the most detailed and reliable information at the most appropriate time. In our study, there were some limitations, one of which was that the evaluated videos were selected only from English videos. Youtube™ is a dynamic platform and new content is constantly being uploaded. However, another limitation was that the characteristics of the videos evaluated in our study reflected the current situation. Using only "circumcision" as a keyword was another limitation. Videos related to the circumcision procedure could also be accessed by typing different keywords in the search engine.

Conclusion

Youtube™ is an important source of information for those who want to obtain information about circumcision surgery. However, many of these videos on Youtube™ contain incorrect and incomplete information, and the videos are generally evaluated as low and medium quality. Therefore, better quality content should be produced by physicians and academic institutions, and patients should be provided with information from more reliable sources.

Ethics

Ethics Committee Approval: The Non-Interventional Clinical Research Ethics Committee Chairmanship of Kütahya Health Sciences University has granted ethical approval (date: 06.04.2022; approval number: 2022/04-06).

Informed Consent: It is an online data screening study. Patient consent is not required.

Authorship Contributions

Surgical and Medical Practices: Ş.C., İ.G.K., H.İ.İ., O.A., Ö.K., M.S., B.A., Concept: Ş.C., İ.G.K., H.İ.İ., O.A., Ö.K., M.S., B.A., Design: Ş.C., İ.G.K., H.İ.İ., O.A., Ö.K., M.S., B.A., Data Collection or Processing:

Ş.C., İ.G.K., H.İ.İ., O.A., Ö.K., M.S., B.A., Analysis or Interpretation: Ş.C., İ.G.K., H.İ.İ., O.A., Ö.K., M.S., B.A., Literature Search: Ş.C., İ.G.K., H.İ.İ., O.A., Ö.K., M.S., B.A., Writing: Ş.C., İ.G.K., H.İ.İ., O.A., Ö.K., M.S., B.A.

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